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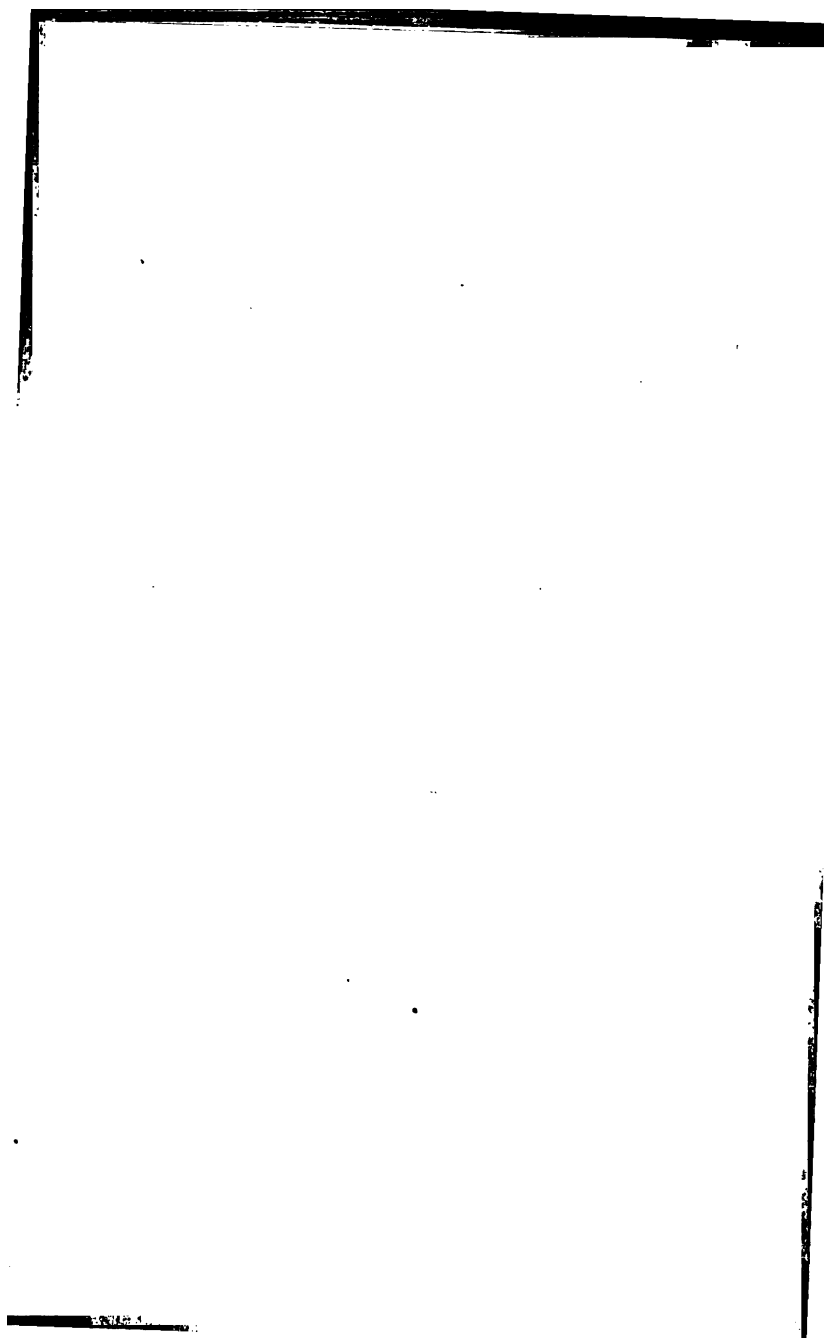
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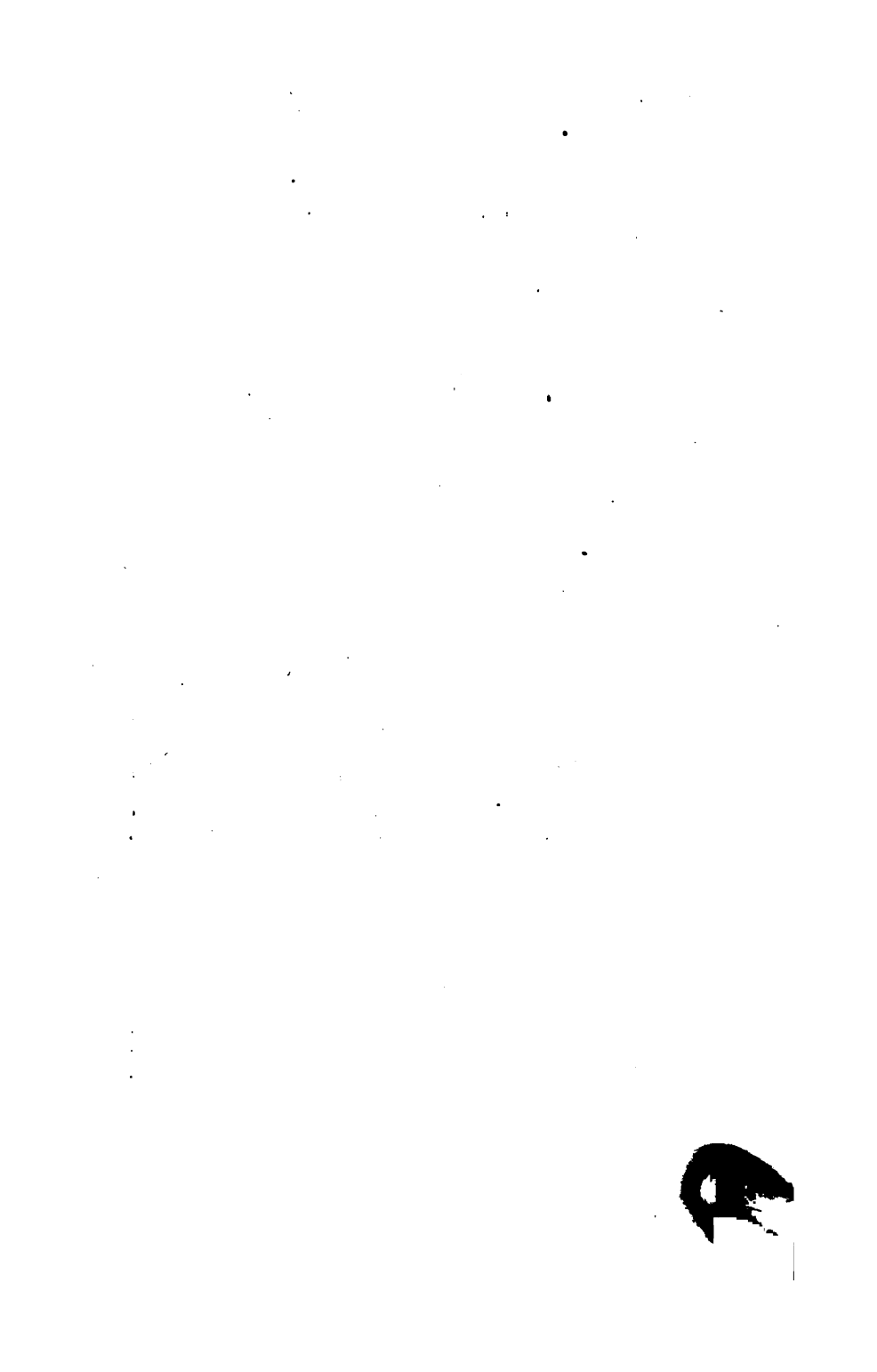


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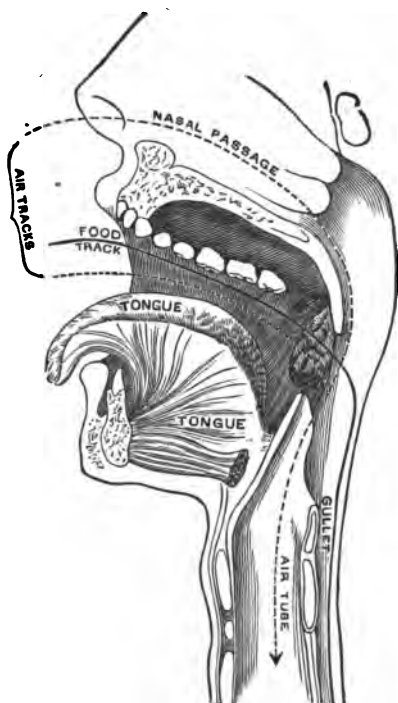


DIAGRAM SHOWING THE FOOD AND AIR TRACKS.

5/10

GYMNASTICS OF THE VOICE

FOR

5-2302

SONG AND SPEECH

ALSO

A METHOD FOR THE CURE OF

TUTTERING AND STAMMERING

BY OSKAR GUTTMANN

ILLUSTRATED



THIRD EDITION

NEW YORK
EDGAR S. WERNER
1893



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1893

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1882, 1884, 1893

PREFACE

TO THE

SECOND AMERICAN EDITION.

THE rapid sale of the first English edition of my "Gymnastics of the Voice," and the speedy necessity of a second edition, lead me to hope that the book will have as prosperous a career here in my adopted country as in my native land. To do all in my power for this end, I have, in accordance with the desire of my publisher, undertaken a complete change in the *arrangement* of the text,—the *substance* of which, however, *remains entirely unchanged*,—for the purpose of making it more intelligible to the general public and better adapted for use in schools. Furthermore, I have added many new and important exercises—*never before in print, and used by me only*, in a thirty years' practice of teaching,—together with several fresh illustrations, while some of the old cuts have been replaced by better ones.

I venture to hope that the form in which I now present it to the public, prepared, as it has been, with the greatest care, will go some little way to meet the requirements of the modern system of education in this country.

I cannot close without noticing the fact, that *my system of breathing*, and all pertaining thereto, has recently been adopted by other authors, who have not made mention, with one solitary word, of the source from which they drew. Several, however,—among them the author of the excellent book, “The Old Italian School of Singing,”—have made use of my ideas and have further developed them, publicly acknowledging all they owed to my book, and its share in inciting them to further researches. While fully conscious of the honor done me by the adoption of my ideas, I may yet be pardoned for desiring the credit of them, as some return for the labor and thought their elaboration has cost me.

OSKAR GUTTMANN,

1884.

P R E F A C E

TO THE

FIRST AMERICAN EDITION.

TWENTY-THREE years have elapsed since the publication in Germany of my "Gymnastics of the Voice," which met with so much favor that a fourth edition has already appeared. At that time, I stood alone in the field, but many others have since taken up the subject. I have not been able, however, to discover a real system, not even in the United States, where I have passed sixteen of my **forty-two** years of study, acting and general experience as a teacher of oratory and the dramatic art.

At the request of many of my friends, I now venture to present, in the language of my adopted country, the system which has been followed by such favorable results in my native land.

THE AUTHOR.

NEW YORK, 1882.



FROM THE

P R E F A C E

TO THE

FOURTH GERMAN EDITION.

WHEN I made the attempt, twenty-three years ago, to write "Gymnastics of the Voice," I was almost alone in this field. So far as I know, no one had published a method of vocal gymnastics for speakers and singers, based upon physiological laws. Some of my colleagues greeted my book with an ironical smile; others were unable to see the necessity of such a work, while only a few admitted its practicability. The press, however, judged differently. From all sides favorable criticisms were pronounced; "Gymnastics of the Voice" was declared to be, beyond all doubt, a most helpful book for oral expression in speech and in song, and it received greater praise than the author had even dared to expect.

Since that time others have had a great deal to do with the human voice. All sorts of books, by laymen and scientists, have appeared. Especially in the last ten years has this kind of literature grown to large proportions, containing much of value with much that is superficial and even positively erroneous and harmful. It would seem, on first thought, that all these new treatises would have superseded and driven out of the market a book which was first pub-

PREFACE TO FOURTH GERMAN EDITION. ix

lished nearly a quarter of a century ago. Yet, during this period, "Gymnastics of the Voice" has passed through three editions; and so soon after the issue of the third edition, a *fourth* is demanded. This is certainly the best proof that in this book are treated topics which are wanting in other books, or which are passed over superficially, but *which are of the greatest importance* to the speaker and singer.

And this is the fact. Among the many books on the human voice which have since appeared, there is none that can show such a *system of breathing* in song and speech as that given in "Gymnastics of the Voice." This distinguishing and indispensable feature was at once recognized and commended by the press, which declared such a method absolutely essential for the cultivation of voice and speech.

In regard to the new edition, the author can say that, without in the least injuring the pith, the book has been thoroughly revised and entirely re-written. Many additions and explanations have been made, they being the results of daily teaching and riper experience, as well as of recent scientific progress. Through the kind liberality of the publisher, illustrations are for the first time added, which will increase still more the practical usefulness and value of the book.

"Gymnastics of the Voice," in its new, enlarged and improved form, will serve, then, as my salutation from over the ocean to all of my friends, and all those who know of my efforts, and who, by their friendly sympathy and interest, encourage me to press on in this field of labor.

THE AUTHOR.

NEW YORK, 1882.



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PART FIRST.

THE ANATOMY OF THE RESPIRATORY
AND VOCAL ORGANS.



INTRODUCTION.

IT has often been our lot to meet highly talented persons with the most healthy and powerful organs of speech, who, as soon as they attempted to use them artistically, not only made a very disagreeable impression upon us, but frequently even forced us to leave the place in which they were speaking. On departing, we would exclaim with regret:—“It’s too bad that they do not know how to employ the means given them by nature—what great results they could accomplish!”

Then they did not understand how to use their organs? Is singing, is speech, then, an art? Are there laws and rules which must be obeyed and followed in order to make our speech pleasing and effective?

Yes! song and speech, with proper breathing, are an art. There are laws and rules according to which our vocal organs must work. But how shall speech and song be made beautiful, pleasing and effective; how shall the difficult art of breathing be



acquired, when the majority of persons not only have no knowledge of these rules, but even cannot name the organs engaged in breathing, speaking, or singing! They say: "I have breathed from birth. The Creator has given me good lungs, therefore I can speak." And the more they scream the better they think they have spoken!

The mere possession of organs, however, is not of itself sufficient for the purposes of speech and song. We must know how to use them; and the better we can do this, producing the greatest effects with the least expenditure of force, the higher is our culture, the more favorably do we impress the hearer, and the greater are the results obtained. This is proven by those persons of ordinary, yes, feeble organs, who, by the right training and employment of them, not only cause the screamers to be forgotten, but accomplish results that astonish the ignorant, who judge only according to the degree of physical power. All people cannot have figures like an Apollo; cannot possess a voice as resonant as a bell and as powerful as a lion's roar, yet they can be asked to cultivate and rightly use their organs. The assertion, that the art of acting and of oratory requires no rules; that, indeed, it will not submit to any, but that the inspiration of the moment must do

everything, is made continually by certain dramatic novices. They learn their parts by heart—a thorough understanding and mental assimilation of the matter is out of the question,—and play them just as it happens to go. Then, if by some chance, owing, perhaps, to their excellent talents, they do display some energy or force, they believe they have proof of the correctness and infallibility of their principle: — “Genius acts upon the instant and needs no preparation.” If a person, in addition to exceptional natural abilities, possesses also a thorough education, he is almost sure to attribute his success not to the training, but to the fine gifts he has received at the hands of nature, so little inclined are people to consider culture essential.

It is to be regretted that so little is done for the proper training of the vocal organs, and that the art of correct breathing is almost unknown. Even distinguished artists, known as such far and wide, are suffering under the bane of totally wrong or at least defective breathing. While the soldier does not begin to use arms until he has perfect control of his body and limbs, and has mastered their various movements; while the painter is not allowed to paint a large picture before he has learned to draw its parts; while musical students have to practice for

weeks and months the most simple exercises, — the orator, declaimer, actor, and often the singer, will appear in public without any, or with only a very superficial knowledge of the right use of the vocal organs, and proceed at mere hap-hazard.

One may often hear a speaker say: "I don't know how it happens that having spoken half an hour, I am dry in the throat, I have pain in the chest, the larynx, etc.!" We hear a singer inquire timidly: "What must I do to avoid getting out of breath in certain difficult passages?" We often hear that a speaker or singer feels apprehension before the execution of this or that piece and says: "Would it were over!" And when we go to the bottom of the matter we always find that such persons have never had any proper training of their organs; and are, as a consequence, unable to perform their part with the necessary calmness, and also lack the necessary strength and power of endurance.

The remark is not seldom made, even by professionals: "What is the use of method? Let everybody breathe and speak as nature permits; in dramatic art the *soul-inspiration* will furnish the means, anything else is secondary!" Who would deny that talent and inspiration are the soul of dramatic art? Who would claim that there can be any art, for which

the inner, heart-felt inspiration is not the first requirement? Has there ever been any great painter, sculptor, musician, composer, poet, etc., without this soul-afflatus? But, on the other side, it is a most legitimate claim, that in no art more than in dramatic art is it necessary to bring the soul-inspiration into harmony with the external organs by which it has to become manifest.

While other artists mainly use only special parts of their organism (the musician his hands or lungs, the dancer his legs, etc.), the dramatic actor can only excel by a harmonious use of *all* his organs. While the painter may have an imperfect or even infirm body, and still be a great artist by virtue of mental gifts and a good eye, the dramatic actor must possess the most perfect control of all his organs, physical and mental. The truth of this claim becomes particularly evident, when we see dramatic actors, such as have attained to a certain distinction in their art, suffering from special defects, as bad gait or attitude, indistinct articulation or faulty breathing,—defects which painfully disturb the total effect, while a less gifted, but more perfectly trained dramatic actor, makes a most pleasant and agreeable impression.

This refutes the assertion, that nothing but genius,

soul-inspiration, is required for the dramatic art, and that everything else is of secondary importance.

If we turn from the votaries of dramatic art to other classes of public speakers, and observe ministers, members of legislative assemblies, lawyers, academic professors,—although we certainly cannot accuse them of defective mental training, still the same ignorance in regard to vocal art and oratory becomes apparent, with rare exceptions.

Especially is it a matter of deep regret, that this defect shows itself so frequently in a class of public speakers with such a high vocation, but who so rarely are fully competent to fulfil it, I mean the defect of all knowledge of vocal art in most members of the ministry. In this profession it has been heretofore thought that nothing was required but mental and spiritual training and a voice, without putting any special claims on the latter point; for there are ministers who have so inferior physical means in that respect, that they cannot be heard or understood in a hall of ordinary dimensions. What is the result of it? The pulpit is the principal place where all can hear public speaking on subjects of momentous interest. Not every one can or will visit the theatre, but everybody can go to church; this is, therefore, the place where a true, perfect

vocal art should show itself and exercise its cultivating influence on the people. The remark often heard in this respect, that a pulpit speaker ought only to care for *what* he says, not *how* he says it, cannot be made any longer. How can a perfect sermon be brought to a true appreciation without a perfect delivery? Let less stress, therefore, be put on the sinful state of man and more stress on the sinful neglect of a true æsthetic form and culture, and let there be given a good example in this respect by an artistic training and cultivation of nature's gifts; for only in this way can the true moral sense in the people be fed and cultivated. Let the people be attracted and accustomed to go to church by the perfection of pulpit oratory. Let the noble thoughts be clothed in a noble form!

But, while we have expressed regret at the defects which are noticeable in pulpit speakers, we must also say, with congratulation, that the satisfaction is great, when now and then we meet a pulpit speaker with whom the external form of delivery shows as much perfection as the inner substance of his discourse, who will render the Word of God in that purity and nobility, as our imagination longs for, whose discourse does not furnish an involuntary

picture of human infirmity. Such, only, have fully realized the importance of their office.

In regard to acquiring perfection in the dramatic art in general, as well as for a logical and æsthetic training in declamation, I refer to the writings of Lessing, Goethe, Schiller, and others. My object in this work has only been to write a gymnastic of the voice for speakers and singers; that is, a guide based on physiological laws for the development and correct use of the physical organs, combined with a system of correct and practical breathing; and as language is intimately connected with this subject, I have something to say thereupon, but only so far as regards the production of the different vowel and consonantal sounds.

CHAPTER I.

VOICE AND SPEECH.

GENERAL DESCRIPTION AND DEFINITIONS.

HUMAN language consists of *sounds* (tones), or *modifications* of the *sounds*, of *noises combined* with *sounds*, and of *noises without any sound* (tone).

The *sounds* are the human *voice*; the modifications of the *sounds* are the *vowels*; the *noises combined* with *sounds* (tones) are the *sounding consonants*; and the *noises without any sound* are the *voiceless consonants*. (Particulars given in Part III.)

Human language, therefore, originates from *unarticulated sounds* (tones), which, with help of *certain organs*, are changed in *articulated sounds* (words), or by a longer duration in *singing tones*.

Speech is the medium by which the mind of man communicates with the outer world. It is not our object to speak of this mode of communication, or of the mental processes required therefor, but of the bodily, material means, the *organs*, which man has received from God, at the hands of nature, for the

purpose of manifesting his mind, as, also of their cultivation and correct use, in order that the *mechanism* of the *organs of voice* and *speech* may be understood.

The human vocal organ is the *most perfect* musical instrument imaginable. It can, by proper exercise, be improved and refined almost indefinitely from its originally crude condition. It possesses great endurance and power of resistance to external influences, and still it is only, so to speak, an accidental function, an addition to other important arrangements necessary to life, a small appendage to the respiratory apparatus, but using the entire large compass of the latter for its own purposes.

The *elements* of *voice* and *speech* are identical, and speech is distinguished from voice only by a *different application* of the same elements, and, furthermore, by the fact that the voice — joining these fundamental elements instinctively, accidentally and unsystematically — produces only the expression of the bodily *impulses, impressions, and sensations*, while speech unites, according to laws of thought and to certain well-defined principles, the same elements into *syllables*, these into *words*, the words into *sentences*, and thereby forms a strict order with the greatest variety.

Speech is, therefore, nothing but audible thought, and is as reason itself, — the attribute of man alone

As voice is always, or almost always, intended for communication at a distance, the *louder, further audible* elements of voice — *i. e.*, the vowels — *preponderate*; the weaker, hissing sounds (noises), which are necessary to speech, that is, to audible thought, are *less frequently* used. While, therefore, the *sounding* elements predominate in the voice, and the hissing sounds in speech, the signs of both appear united in song.

The tone is the same in *speech* as in *song*. Its manifestations in both cases can be made apparent in *exactly the same* manner, and a difference is to be found only in the duration of the sound. The voice is produced by the air contained in the lungs passing through the larynx, thereby inducing sounding vibrations of the vocal cords.

In *speaking*, the vocal cords vibrate only for a second; in the next moment the vibrations are interrupted by others. The sound first produced has, therefore, no time to make use, for its perfection, of all the means of consonance, etc.; and, therefore, receives a feebler and emptier impress.

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purpose of manifesting his mind, as also of their cultivation and correct use, in order that the *mechanism* of the *organs of voice* and *speech* may be understood.

The human vocal organ is the *most perfect* musical instrument imaginable. It can, by proper exercise, be improved and refined almost indefinitely from its originally crude condition. It possesses great endurance and power of resistance to external influences, and still it is only, so to speak, an accidental function, an addition to other important arrangements necessary to life, a small appendage to the respiratory apparatus, but using the entire large compass of the latter for its own purposes.

The *elements of voice* and *speech* are identical, and speech is distinguished from voice only by a *different application* of the same elements, and, furthermore, by the fact that the voice — joining these fundamental elements instinctively, accidentally and unsystematically — produces only the expression of the bodily *impulses, impressions, and sensations*, while speech unites, according to laws of thought and to certain well-defined principles, the same elements into *syllables*, these into *words*, the words into *sentences*, and thereby forms a strict order with the greatest variety.

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be continued for quite a length of time. A sound in song, suddenly interrupted immediately after its beginning, no longer retains the character of a *sound sung*, but evidently that of *one spoken*.

The chief obstacle in the way of singers and orators, despite their good vocal organs, is ignorance of the correct use of the respiratory organs. Correct breathing, however, is the basis of speech as well as of song; for the voice, as much as speech, can originate only *in* and *by* the air expelled from the lungs.

Singing and speaking are, on the whole, only a branch of respiration, whose main function in life is the oxygenation of the blood and the production of animal heat. The inspired air, which, after performing this function, is expelled, has, nevertheless, been useful before mixing with the atmospheric air by acting as the motive power for the vocal cords, and by becoming a tone, the result of having been, in its return, set into a new vibratory movement.

The voice, then, is, as we have said, produced by the air contained in the lungs passing through the larynx, thereby inducing sounding vibrations of the vocal cords. If the voice is to be formed into words, we need, besides the respiratory organs and the larynx, those organs which are situated above the larynx, and to which the *pharyngeal* cavity, the *nasal*

and *oral* cavities, including the *tongue*, *palate*, *teeth* and *lips*, belong.

Only by the right application of these organs can pure tones and correct formation of words be produced. The slightest misuse, the smallest deviation from the right path, is the cause of such strange sounds, such peculiar word-formations, as we frequently hear, and in which *palatal*, *nasal* and *guttural* tones predominate.

The reader can infer the importance of breathing in song and in speech from these few introductory remarks, which may be summed up in this sentence: *The air which streams from the lungs is the primary cause of all vocal phenomena*, and the *larynx* is the *generator of the voice*.

The organs which we require for respiration are the following:

First. The *chest* (thorax) with the muscles of respiration.

Secondly. The *air-passages* through which atmospheric air is drawn into the *air-receivers* (lungs), and which are composed of the *oral* and *nasal* cavities, the *pharynx*, the *larynx*, the *trachea* (wind-pipe) and *bronchi*.

Thirdly. The *lungs* (air-receivers).

All movements of the human body are brought

about by the action of the muscles which are attached to movable apparatuses, and are made to operate through the medium of the nerves.

Without the proper co-operation of the muscles, it is impossible to accomplish anything.

Thoughts originate in the brain, the brain acts upon the nerves, the nerves act upon the muscles, and the muscles upon the bones; and only after this process are we able to undertake an act.

It, therefore, becomes necessary, above all, to understand the constitution of the muscles in general, as well as their preservation and development, and especially the inner character and working of those which pertain to our subject.

So much for voice and speech in general. Let us enter into details.

CHAPTER II.

THE MUSCLES.

SECTION 1.

THE MUSCLES IN GENERAL.

THE muscles consist of muscular tissue (flesh), which possesses the property of contracting and expanding.

The contraction of a muscle is followed after a time, either voluntarily or through exhaustion, by an abatement of contraction, a state of rest, during which a change of material (nutrition) can be carried on better; whilst, during contraction, a greater consumption of blood and of the nerve-power occurs.

By frequently recurring, gradually increasing activity of the muscles, and by partaking of the necessary meat diet, these can be made to increase considerably in power and size; whereas a surplus of fat and inactivity will cause them to become flabby and powerless.

What wonderful strength and versatility is achieved by man through habituating (correctly exercising)

the muscles to certain functions, the exercise being, of course, gradually increased and interrupted by the necessary repose, is attested by all those whose chief occupation consists in the use of the muscles, such as *gymnasts, athletes, dancers, pianists*, etc.

As in the contraction of a muscle a larger amount of blood is required, so in its relaxation a greater blood-formation occurs; it is perfectly natural that a muscle in constant change (in contraction and relaxation, *i. e.*, activity and rest) is strengthened much more, and tires itself much less, than one whose activity is either constantly or for a long time one-sided.

It is owing to this that continued standing is more fatiguing than continued walking.

When a muscle is either too much strained, or kept in motion too long, lameness frequently follows.

Only continued exercise of the muscles, alternating with the required rest, will eventually succeed in enabling them to make those movements which the human will dictates. At the commencement of these exercises one is seldom able to do this, and can hardly, while exercising certain muscles for certain purposes, prevent other muscles, which are not requisite for those functions, from co-operating.

Observe any person who is beginning to learn

gymnastics, dancing, fencing, or piano-playing, and you will find our assertion confirmed.

It is in the highest degree amusing to watch a young, imaginative, talented and impassioned person when reciting for the first time. Not only the required, but all the muscles move in a spasmodic and ugly way, and the face generally expresses, if not exactly the contrary, yet only partly, the disposition of the mind.

We note the misapplication of the muscles most generally in cases where the human voice is used in either singing or speaking, and this is the frequent cause of defective speaking and singing.

Many may be astonished, even provoked, because they must hear so much about the muscles, — they who want to become neither athletes nor dancers, but simply singers or orators. This, however, cannot be helped. Nature is so obstinate that she demands a correct muscular movement as well from the singer and the orator as from the athlete and dancer (of which we shall learn more further on); nature makes no exception of them; but that our reader or scholar may be disposed to follow the further description of the muscles with pleasure, it will be well for him to bear in mind what we said in Chapter I, viz.: “Thoughts originate in the

brain, the brain acts upon the nerves, the nerves act upon the muscles, and the muscles upon the bones; and only after this process are we able to undertake an act."

Here, again, we come upon something which will be still more distasteful to the class of persons we have referred to, viz.: That their brains and nerves must also be employed whilst singing and speaking. Perhaps, in the end, this curious writer will require that the brain and nerves should also be educated! Of course; for the first task is to educate our brain through mental exercises, because only a brain educated and imaginative, well exercised in thinking, and that, too, in quick and decisive thinking, will be able to act upon the nerves and muscles. Only after continued practice shall we be able to bring into operation such muscles as should be employed.

To strengthen the muscles, and with them the entire body, and make them obedient to our will, we must practice systematically. Gymnastics are, of all bodily exercises, the best qualified for this purpose, because very nearly all the movements of the human body are embraced in them; but we must observe very closely the following rules, if we do not want to receive more harm than good through these exercises.

SECTION 2

DIRECTIONS FOR PRACTICE.

1. The most suitable time for practice is shortly before breakfast, dinner or supper. The best time is in the morning before breakfast. After exercise, a pause of half, or at least a quarter of an hour must ensue before eating, as digestion cannot be well carried on in an excited state of the muscles. No exercise must be taken upon a full stomach.

2. Success results only from perseverance. If the desired end is to be reached, practice must be carried on with great regularity.

3. Before beginning, all oppressive clothing must be removed; neck, chest and abdomen must be free from pressure. Women must remove every sort of corset.

4. If, during practice, a decided rush of blood to the head is remarked, or a quickened pulsation of the heart with rapid breathing, the exercise must be carried on very circumspectly and moderately, with long pauses; that is, between every two exercises there must be a normal action of the lungs.

5. During exercise, the breath must not be held in. On the contrary, draw the air slowly, and in deep draughts, into the lungs, and expel it just as slowly, not forgetting to contract the abdominal muscles.

A right action of the lungs is indispensable for the preservation of man, since upon this depend the soundness of the lungs, the proper circulation of the blood, and the health of the whole body.

The pauses between the exercises are, therefore, used for deep breathing, which is practiced by inhaling the air slowly, and in as great quantities as possible, and expelling it just as slowly.

Diseases of all sorts result, in great measure, from defective breathing, as very many, and hysterical persons in particular, breathe only with the upper half of the lungs, thus injuring the lower half through lack of expansion. This frequently leads to consumption in youth, and to asthma in old age.

6. The movements must be slow, but decided and energetic.

It is well in exercising to observe a certain measure, with counts either loud or silent, which may cease as perfection is acquired by practice.

In the beginning make an exercise five to eight times; after a few days, ten to fifteen times; after three or four weeks, twenty to thirty times. Never repeat an exercise oftener.

Above all, guard against entire fatigue of the muscles. As soon as an undue sense of weariness comes on, the exercise must be stopped or deferred until it is over. Be content with small results at first. Strength and ease will come with practice.

That disagreeable tension of the muscles which ensues at first, need not cause alarm in regard to the health, and induce one to abandon gymnastic practice. Injury results only from senseless over-excitation of the muscles. A gradual progress in exercise should be observed; a safe and steady passage from easy to difficult things.

7. Exercise must be carried on in pure air. If within doors, the place should be thoroughly ventilated by opening doors and windows before the practice begins. It must not be prosecuted in jerks and starts. Women should be exceedingly careful in this regard.

The double organs (arms, shoulders and hips) should be exercised right and left alternately.

Particular attention should be given to the perfecting of the respiratory muscles (chest and abdominal), and one should be particularly cautious not to over-exert them. Always allow a certain lapse of time for rest before beginning to exercise anew, and bear in mind that only a slow and gradual exercise, continued for a long time, and interrupted only by the proper rest, will enable us to achieve our aim.

SECTION 3

EXERCISES FOR THE MUSCLES OF RESPIRATION AND OF THE NECK.

The person exercising must stand perfectly erect, with straightened knees, the heels close together, the toes turned slightly outward so that the feet shall form the sides of a right angle, the chest thrown outward (not excessively), the shoulders thrown back, and the hands hanging loosely

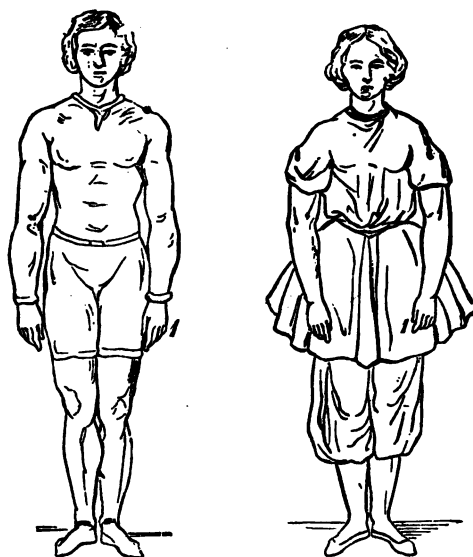


FIG. I.

at the side or set akimbo. From this position he should begin all his exercises. We call it the *Base Position* (Fig. I).

I.

HEAD AND NECK EXERCISES.

1. *Turning the Head to the Right and Left (6, 8, 10 times).**

The head is turned slowly to the right without lowering it, as far as the muscles of the neck allow (Fig. II). Remaining some time in this position greatly



FIG. II.

strengthens the muscles of the throat and neck. The same practice is then observed by turning the head to the left, while the body remains in its *base position*, and the shoulder-muscles are motionless.

The object of this practice is to give freedom to the muscles of the neck. This is very necessary, for in gesture it constantly occurs, notably in persons of high rank, that a slight turn of the head to one side or the other, without the least movement of the body, is of great significance. When, through inflexibility of the muscles of the neck, arising from want of exercise, the whole body turns with it, as we often observe in persons without gymnastic training, or when singers cannot turn their heads during singing without causing the tone to cease suddenly,—the effect is bad.

2. *Bowing of the Head Forward, Backward, or to the Right and Left (6, 8, 10).*

The head is bowed in a fourfold way, the trunk remaining erect, without stretching the neck-muscles too powerfully.

* The figures in parentheses after each exercise indicate the number of times the exercise is to be repeated; the first number to govern the pupil in the *beginning* of his practice, the second number after *two weeks*, the third number after *eight weeks*. The last number is then retained.

The backward inclination of the neck, especially in women, should be slight (Fig. III).



FIG. III.

From this fourfold exercise of the head proceeds one exercise:—

3. *The Head Circle* (10, 20, 30).

The four head movements are united by a circular line (Fig. III, *a—b*), and also make a funnel-shaped movement without the head passing to its normal position. From the forward inclination of the head we pass to the left side, to the back, to the right side, and again to the forward movement, repeating the whole exercise in reversed order; the upper part of the body remaining in its *base position*, and the uninterrupted circular form slightly indicated.

A strong, muscular neck is not a feminine trait, surely; but women often greatly strengthen the muscles of the head and neck by gymnastic exercises. While the neck has to sustain the not inconsiderable weight of the head, an oblique carriage of the head may be easily brought on if the neck, from weakness or relaxation of its muscles, cannot perform the required service. In case of this oblique carriage of the head, mothers and teachers have sometimes used collars set with bristles so arranged that the bristles at once cause a disagreeable sensation if the neck inclines to one side. Tissot tells of the superior of a convent who corrected this habit by instituting a sort of game in which a ball or some other slippery object was carried on the head, the pupil who let it fall paying a forfeit.

A lady pupil came to the author of this work, —a singer who, after two years' study with another teacher, could not sing a note without turning her head considerably toward the right shoulder, which, while giving her an awkward appearance, also greatly injured the tone. He adopted the following method: As soon as she began to sing he had her turn her head to the left shoulder, not allowing her to sing a note

in any other position. After some months when he saw that the inclination to the right shoulder had wholly disappeared, he let her hold her head erect. Now in singing there was a conflict between the right and left muscles, but the effort to obey neither much facilitated the erect position of the head, and the oblique leaning was wholly cured.

II.

TRUNK EXERCISES.

1. *Shoulders Up and Down* (30, 40, 50).

Raise both shoulders as high and as forcibly as possible, then allow them slowly to return to their original



FIG. IV.

position. A too sudden lowering in frequent exercising would jar the head (Fig. IV).

Begin the exercise with both shoulders, then alternate, retaining strictly the *base position*, except in regard to the arms, which, without bending the elbows or keeping them too stiff, will be drawn along by the shoulders.

2. *Shoulders Backward and Forward* (8, 12, 20).

Draw the shoulders backward and forward singly, and afterward both together. From the combination of these movements we have exercise

3. *Shoulder Circle* (8, 12, 20).

Move the shoulders upward, backward, downward, forward and again upward, without interruption, not in jerks, but so as to describe a circle; then the same in reverse order, that is, upward, forward, downward, backward, etc.

In all these exercises we must be very careful that only the muscles which are to be exercised be active, and that all the others are perfectly at rest.

4. *Turning of the Trunk (10, 20, 30, to and fro).*

In this exercise the trunk is turned on its axis, alternately to the right and to the left, without moving the hips, the vertical position being always retained, the legs kept firmly in the *base position*, and the arms set akimbo (Fig. V).



FIG. V.

5. *Inclination of the Torso Forward, Backward (10, 20, 30), and Right and Left (20, 30, 40).*

With the legs in the *base position* and the arms set akimbo, the trunk, kept straight from the hips to the crown of the head, is bent slowly forward until it forms a right angle with the legs, and then is brought slowly back to the *base position*; without stopping it is in like manner bent backward as far as possible, returning again to the *base*

position. This exercise must be performed at first slowly, then more quickly, and at last with a certain stress, as though the upper part of the body were about to be thrown to the ground and were suddenly jerked back to the *base*

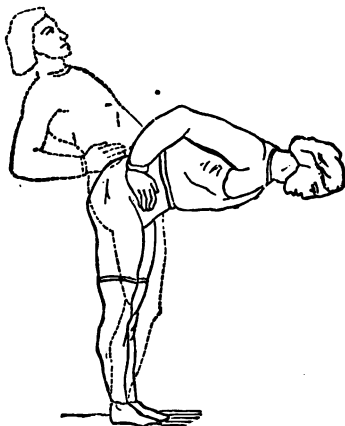


FIG. VI.

position, and then beyond (Fig. VI). In the same way the trunk should be bent to the right (Fig. VII, *a*) and left (Fig. VII, *b*), but without the already-mentioned stress.

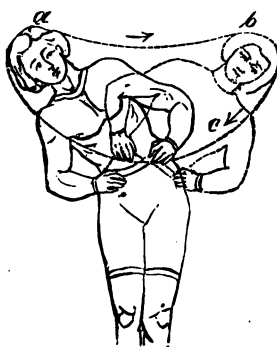


FIG. VII.

The sideward movement, and still more so the backward movement, can be executed only to a limited extent. From the combination of these movements we have

6. *The Torso Circle* (8, 16, 30).

In this exercise the trunk, perfectly straight, moves round on the hips without changing front. (Fig. VII. The arrows indicate the direction of the movement *a, b, c*, from right to left, and then *vice versa*.) This exercise will be best executed with the arms set akimbo. The back and the abdominal muscles are by these movements especially developed, and this is absolutely necessary for singing and speaking, as well as for every very exerting position. This exercise, too, must finally be performed with *articulate stress*.

7. *Elevating the Torso* (4, 8, 12).

The pupil should lay himself flat on the floor, on his back, with his arms folded over his chest or laid along his sides, and must then, without changing the position of the legs or separating the feet, raise himself slowly without a throw to a sitting posture, and, after a couple of seconds, let the body sink again to the floor. Many will at first find it impossible to perform this exercise, especially persons with weak abdominal muscles. These should place a pillow under the head, or place the toes under some firm object. After a while they will be able to dispense with these aids.

This exercise has for its object the strengthening of the abdominal muscles, which, as I have already said, is necessary not only for our health, but also for oratory and song.

III.

ARM EXERCISES.

(a) WITH OUTSTRETCHED ARMS, I. E., BY SIMPLE MOVEMENTS OF THE SHOULDER-JOINTS.

1. *Lifting and Moving the Arms Forward up, Downward back and Sideway up* (10, 20, 30).

Having placed the body in the *base position*, move the outstretched arms slowly forward (Fig. VIII, *a, c*), raising them to the sides of the head until they touch the ears and stand perpendicularly (Fig. VIII, *d'*), and then let them swing back gently to the *base position* and beyond (Fig. VIII, *e*). Both these movements should at first be performed slowly, but gradually quicker and quicker until we obtain the full swing. The raising of the arms sideway is performed first with the back of the hand, and then the palm turned

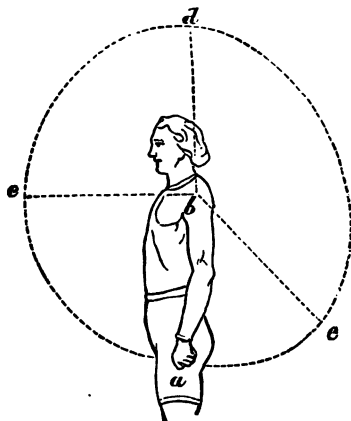


FIG. VIII.

upward, the arms being raised until they touch the sides of the head, and then made to return to the *base position*. Here, too, we pass over gradually to complete swinging of the arm: After having attained perfect control over the shoulder-joints, we proceed to

2. *Arm Circle* (8, 12, 20).

The pupil should endeavor, with outstretched arms, to describe a broad circle from the front backward, and *vice versa*, in the following way: Having raised the arms as in the preceding exercise, he should continue to move them round backward until they return to the *base position*. The movement should be slow at first, then quicker and quicker up to a full swing. The curve described will, at the beginning, be rather an ellipse than a circle, but after long practice it will be possible to approach very nearly to a circular motion. The shoulder-muscles, as well as all those encircling the thorax, are by this means put into a free and general activity. The effect will be an increased flexibility of the shoulder-joints, and a strengthening of the respiratory muscles, which also involves the widening of the thorax.

3. *Turning and Revolving the Arms* (30, 40, 50).

Raise the outstretched arms laterally to the level of the shoulders, the back of the hand upward (Fig. IX, *b*), then

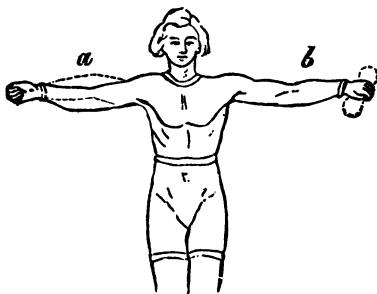


FIG. IX.

turn the palm upward (Fig. IX, *a*), and continue reversing in this way, the wrists being kept as stiff as possible. Then make the same exercise with clenched hands. This exercise can be best performed by imagining yourself in the act of driving a gimlet into a post.

4. *Balancing and Oblique Movements* (8, 12, 16).

The pupil should raise the outstretched arms forward to the level of the shoulders, the palms turned toward each other; then move them round backward horizontally, with a stress, as though he wished to bring the upper surfaces of his hands together behind his back, which is impossible to accomplish entirely; and, finally move them forward with the same stress, etc. Movement to be slow at first, then quicker and quicker up to a full swing.

(b) WITH THE AID OF THE SHOULDER AND ELBOW-JOINTS.

1. *Attraction and Repulsion* (10, 20, 30).

The pupil should bring the lower arms with clenched fists from the *base position* up till the fists nearly touch the shoulders (Fig. X); then, with a violent throw, make the arms return to the *base position*.

This exercise should be executed *downward* (10, 20, 30), *upward* (4, 8, 12, Fig. X), *forward* (10, 20, 30, Fig. XI), *backward* (6, 10, 16, to a certain extent, Fig. XI), and

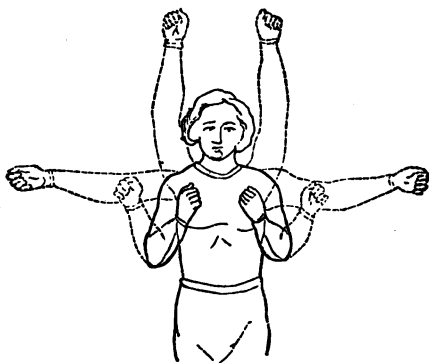


FIG. X.

sideward (Fig. X). The upper arms remain in the *base position* in the downward movement; in all other cases

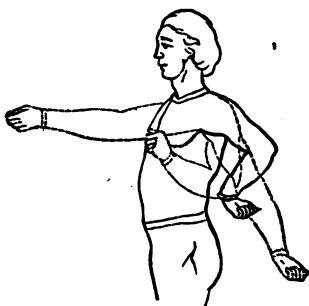


FIG. XI.

they follow the movement of the lower arms. We should observe in regard to the feet, that the weight of the body should fall more on the toes than on the heels, so as to make the shock to the brain as slight as possible.

2. Elbows Back (8, 12, 16).

Place both arms akimbo, and move the elbows back as far as possible. The back must be held perfectly erect. The particular stress of this movement is in the thrusting back of the elbows, which must be made to correspond with each inspiration.

3. Movements of the Arms Behind the Back (8, 12, 16).

Fold the hands on the back, near the region of the loins, so that the palms face each other; now endeavor to extend the arms without loosening the hands, and raise them thus extended upward as far as possible (Fig. XII). Lower them and continue in this way, first slowly, then with increased rapidity. The spine must not be curved during this exercise.

In these movements the shoulders are powerfully and firmly drawn back and down, and the front walls of the thorax mechanically extended, which is conducive to breathing.

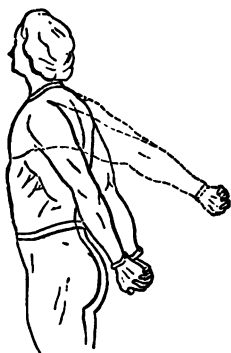


FIG. XII.

4. *Stick Circling Backward and Forward* (4, 12, 16).

Let the pupil grasp near the ends, the backs of his hands upward, a rounded stick, one inch in thickness, and which reaches from the floor at least as high as his shoulder. Begin with holding the stick across the front of the body, passing it over the head and behind him as low as possible without bending the arms, and then back again. While passing backward take a deep inhalation and hold the stick behind the back as long as the breath can be held; in going forward a strong expiration takes place. The principal effect is on the shoulders, arm extensors, spinal and abdominal muscles.

This exercise is difficult to do at first, but after practice grows much easier.

What is said here of the muscles in general pertains particularly to the muscles of the larynx. These must be exercised with the utmost care, and in a slowly and gradually increasing manner (as we shall see further on), unless we wish a total incapability of action to ensue.

CHAPTER III.

DIVISIONS OF THE MUSCLES.

THE muscles are divided into *voluntary* and *involuntary*.

To the latter belong the diaphragm, the heart and the intestines.

To the voluntary belong all the remaining muscles.

We must distinguish (*a*) muscles of the head, (*b*) muscles of the trunk, (*c*) muscles of the upper limbs and (*d*) muscles of the lower limbs.

After having treated of muscles in general, we have only to observe particularly the muscles of the trunk, since our method of tone-formation, as far as breathing is concerned, is based chiefly upon the correct activity of the *abdominal muscles and the diaphragm*.

Of the *muscles of the trunk* we only require to observe more closely the *chest* and *abdominal* muscles, as well as the *diaphragm*.

The muscles of the chest serve in breathing to move the chest, as also at times the arms, and to

lower the shoulders. They lie upon the front surface of the thorax (without covering the middle), toward and at the sides, and fill out the spaces between the ribs.

The abdominal muscles serve particularly (for our purpose) for expiration. Besides this they shield the intestines, promote the bending of the body, and help to contract the abdominal cavity.

"The ribs are attached to the spine so as to be freely movable upon it; but when left to themselves they take a position which is inclined obliquely downward and forward. Two sets of muscles, called *intercostals*, pass between the successive pairs of ribs on each side. The outer set, called *external intercostals*, run from the rib above obliquely downward and forward to the rib below. The other set, *internal intercostals*, cross these in direction, passing from the rib above, downward and backward, to the rib below. The action of these muscles is somewhat puzzling at first, but is readily understood if the fact that *when a muscle contracts, it tends to make the distance between its two ends as short as possible*, be borne in mind. Consequently the external intercostals must raise, and the internal intercostals must depress, the bony ribs." *

The other muscles of the chest, which connect the ribs with parts of the spine above them, and with the shoulders, require no special description. The function of all these muscles is merely either to raise single groups of ribs, or to raise them and at the same time force them outward so as to considerably expand the chest.

* Huxley's "Lessons in Elementary Physiology."

SECTION 1.

THE ABDOMINAL MUSCLES.

The abdominal muscles are, like all voluntarily movable muscles, thicker in the middle than at either end, where they terminate in shorter or longer tendons, by which they are fastened to the bones or to other tendons. They lie in layers one upon another, form the fore and side covering of the abdominal cavity, and are always found in pairs. This is because the single muscle does not extend the whole width of the abdomen, but only to the middle where it ends with its tendon on the *musculus rectus*, in the middle of the latter and *in* or *on* the *linea alba* (by which the *musculus rectus* is equally divided). A similar formation is found on the other side, so that the two muscles are connected by their tendons and practically form one. These muscles are called,—

1. *Musculus rectus abdominis*.
2. *Musculus transversus abdominis*.
3. *Musculus obliquus descendens*. (The external oblique.)
4. *Musculus obliquus ascendens*. (The internal oblique.)

Imagine the entire wall of the abdomen freed from



all its insertions, and stretched out flat, and it will show about the following form and position of its muscular fibres (Fig. XIII).

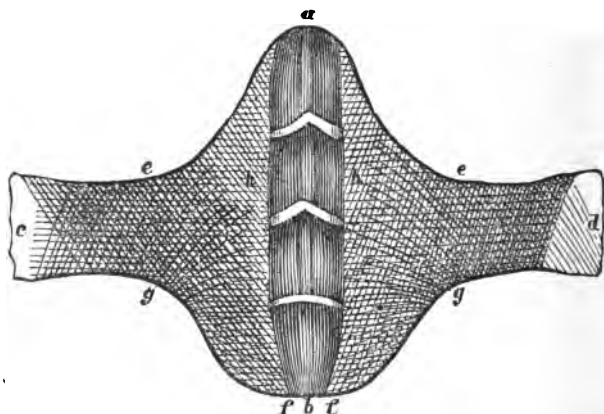


FIG XIII

In a perpendicular line from *a* to *b*, *musculus rectus abdominis*; transversely from *c* to *d*, *musculus transversus abdominis*; obliquely from *e* to *f*, *musculus obliquus descendens*; obliquely from *g* to *h*, *musculus obliquus ascendens*.

The action of the muscle *obliquus descendens*, and that of the *ascendens*, if acting separately, are dissimilar. The *descendens*, marked *e*, *f*, *e*, *f*, when alone active, or specially so, presses the contents of the abdomen upward, the *ascendens*, *g*, *h*, *g*, *h*, more downward. Owing to this the first-mentioned

oblique *descendens* is active particularly in singing and speaking.

If, however, the *descendens* and *ascendens* of both sides co-operate, *i. e.*, all four act uniformly and simultaneously, then the combined action in all parts of the abdomen, especially at the sides, will be a contraction of the abdominal cavity from the front backward.

The *musculi transversi abdominis*, marked *c*, *d*, contract the abdominal cavity in a horizontal direction. The shortening of the fibres causes the side walls of the abdomen to become flattened, and the middle wall to be drawn nearer to the vertebral column. Their fibres can all contract simultaneously, or one division can be especially active; in every case, however, both sides operate simultaneously. The upper fibres, which are attached to the ribs, can only then contract powerfully when the ribs are fixed.

The *musculi recti abdominis*, those marked *a*, *b*, draw the sternum down, contracting the abdominal cavity in a vertical direction. These muscles are comparatively the least active, being very narrow, whilst the *musculi transversi abdominis*, which are spread over the entire abdomen, are the most active.

The co-operation of all the muscles causes con-


traction in all parts of the abdominal cavity; and through this contraction, as before stated, expiration is brought about and strengthened.

SECTION 2.

THE DIAPHRAGM.

The *diaphragm* is a flat and sinewy muscle. It is attached to the interior surface of the lower ribs, and also to the vertebral column. It forms a wall between the thoracic and the abdominal cavity. The part of the muscle extending toward the chest-cavity is arched. In the act of inspiration it contracts, *i. e.*, it flattens itself, and by this means increases the chest-cavity; but that an empty space should not result in consequence, we must, by means of the larynx and trachea, inhale fresh air into the lungs. Through relaxation, *i. e.*, by the re-arching of the diaphragm, the lower part of the chest-cavity is made smaller; and, in this way, the air from the lungs is expelled (Fig. XIV).

The diaphragm, although considered an involuntary organ, can, owing to the diverse nature of its nervous fibres, be made voluntary to a certain extent; and it is *this* which enables us to *sing* and *speak*, as *far as inspiration* and *expiration* are *concerned*.



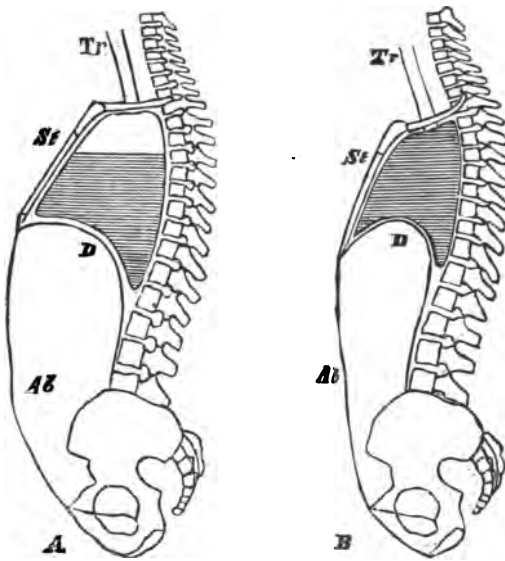


FIG. XIV.

DIAGRAMMATIC SECTION OF THE BODY.

A, the diaphragm in inspiration; *B*, the diaphragm in expiration. *Tr*, trachea; *St*, sternum (breastbone); *D*, diaphragm (midriff); *Ab*, Abdomen. The shading roughly indicates the stationary air.

We shall see further on how much depends upon our ability to cause the diaphragm to perform certain movements, upon the power of controlling its action.

CHAPTER IV.

ORGANS OF RESPIRATION.

SECTION 1.

THE CHEST (THORAX).

THE bony frame of the chest is composed of the following parts: The *upper twelve* (cervical or

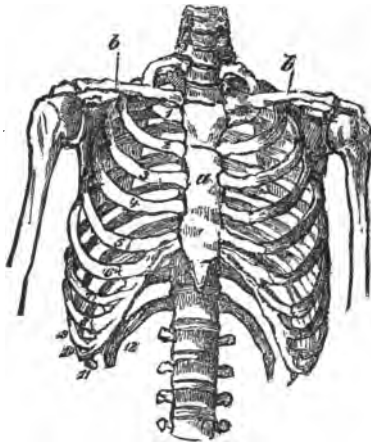


FIG. XV.

AN ANTERIOR VIEW OF THE THORAX.

1-12, the ribs; a, the breastbone; b, the clavicle.

dorsal) vertebræ, the *ribs* (twelve on either side, Fig. XV, 1-12), the *sternum* (a bone in the anterior and

the median line of the chest), beginning at the base of the neck and reaching to the so-called "pit of the stomach" (Fig. XV, *a*) and the *clavicle* (Fig. XV, *b, b*).

Most of the ribs are connected with the sternum by cartilages.

The cavity (of the chest) formed in this way contains the *heart* and the *lungs*, and is divided from the abdominal cavity by a large muscle, the *diaphragm*, as has been described.

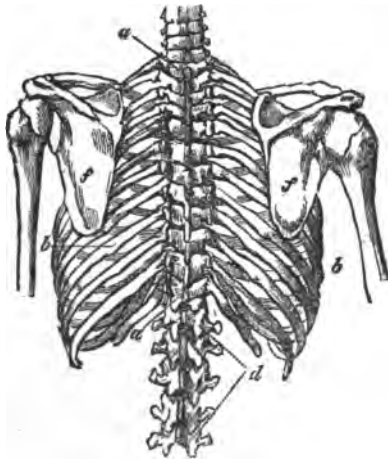


FIG. XVI.

A POSTERIOR VIEW OF THE THORAX.

a, a, the dorsal vertebræ; *b, b*, the ribs; *d*, lumbar vertebræ; *f*, shoulder-blades.

By means of muscles and tendons, which surround the bony walls of the chest, these latter possess the

capacity to expand, and consequently to increase the thoracic cavity. Upon the degree of this power of expansion depends the size of the lungs, as they, being attached to the chest-walls by enclosing membranes (called *pleuræ*), can only expand in proportion to the increase of the thoracic cavity.

The functions of the chest, in respect to respiration, will be fully explained in Part IV.

SECTION 2.

THE ORAL CAVITY (FIG. XVII).

By the term "oral cavity" we understand the free space enclosed by the tongue, palate (soft-palate and uvula), and lips. It forms the entrance to the stomach and to the lungs, and contains the muscle most important to speech, the *tongue*, which is attached to the floor of the oral cavity.

The roof of the oral cavity is called the "palate," which consists of two portions, the *anterior* being named the *bony* or *hard-palate*, the *posterior* (from the centre of which depends the *uvula*), the *soft-palate*. The hard-palate also composes the floor of the nasal cavity. The sides of the oral cavity are formed by the jaw-bones and the teeth. The tonsils are placed at the sides of the soft-palate. The

opening (fauces), which lies between the soft-palate and the *back part* of the tongue, is of great importance during singing and speaking, as we shall see further on.

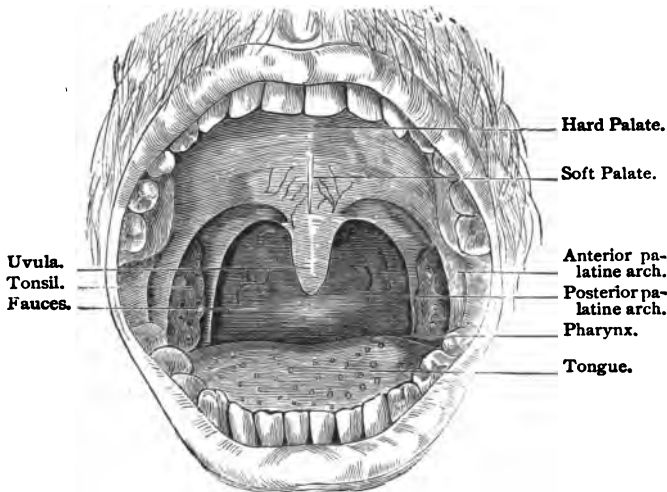


FIG. XVII.

VIEW OF PARTS SEEN WHEN THE MOUTH IS WIDELY OPENED.

SECTION 3

THE NASAL CAVITY — NASAL FOSSÆ (FIG. XVIII).

The part of the human body wherein nature has placed the olfactory nerves (nerves of smell), is called the "nose." We distinguish the outer from the inner nose. Our attention is here called only to the inner nose, the nasal cavity. This is lined with mucous

membrane (within which the nerves of smell are distributed), and is intended not only for the sense of smell, but also quite especially for *respiration*. It is divided by a cartilaginous, vertical partition into two parts; its floor is, as already stated, formed by the hard-palate. The external orifices are called "nostrils;" the internal ones are the nares (*choanæ*). The latter communicate with the pharynx, and by means of this with the oral cavity, the larynx and the windpipe.

Fig. XVIII.—REPRESENTATION OF SECTION THROUGH HEAD AND NECK.

A, the *naso-pharynx*; B, the *oro-pharynx*; C, the *laryngo-pharynx*; 4 is the superior and 5 the inferior turbinated process of the ethmoid bone; 6, the turbinated bone; 7, the hard and 8 the soft-palate; 9, the uvula; 10, anterior palatine arch; 11, lower jaw-bone; 12, tonsil; 13, orifice of the eustachian tube; 14, Rosenmueller's fossa; 15, tongue; 16, hyoid-bone; 17, posterior palatine arch; 18, vallecula; 19, epiglottis; 20, thyroid cartilage; 21, ventricular fold; 22, vocal cord; 23, arytenoid cartilage; 24, cuneiform cartilage; 25, cricoid cartilage; 26, anterior muscle; 27, supra-arytenoid cartilage; 28, lateral muscle; 29, thyroid body; 30, windpipe; 31, foodpipe.

The air-capacity of the nasal fossæ exerts a great influence upon singing and speaking; less in expiration than in inspiration.

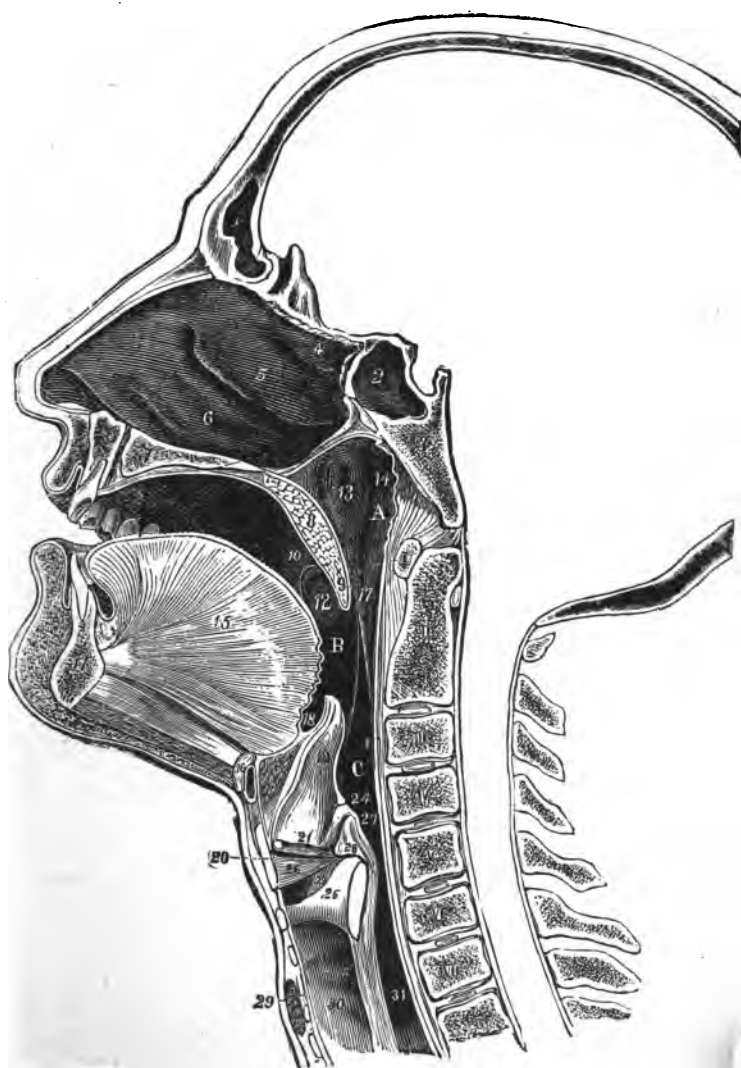


FIG. XVIII.

SECTION 4.

THE PHARYNX (FIG. XVIII, A, B, C).

By the term "pharynx" we understand that part of the alimentary canal which is placed behind the nose, mouth and larynx. Above it is connected with the nose through the two large apertures called *posterior nares*; below it is continuous with the œsophagus, and attached to the larynx. It is divisible into three portions, the middle of which is called *oro-pharynx* (Fig. XVIII, B), the upper portion, *naso-pharynx* (Fig. XVIII, A), and the lower portion *laryngo-pharynx* (Fig. XVIII, C).

SECTION 5.

THE LARYNX (VOICE BOX; FIGS. XIX, XX, XXI).

The larynx is a hollow body composed of cartilages which are united by ligaments. The cartilages consist of the *shield* or thyroid cartilage, the *ring* or cricoid cartilage, the two *pyramid* or arytenoid cartilages, the *epiglottis* (the cover of the larynx), and of four more which, however, are not of so great importance.

It is lined with mucous membrane, surrounded by muscles, and its function is to admit the air to the lungs, but more particularly to produce the voice. It forms the upper part of the windpipe

(Fig. XIX), is connected with it below, and is situated at the upper and fore part of the neck, beneath the

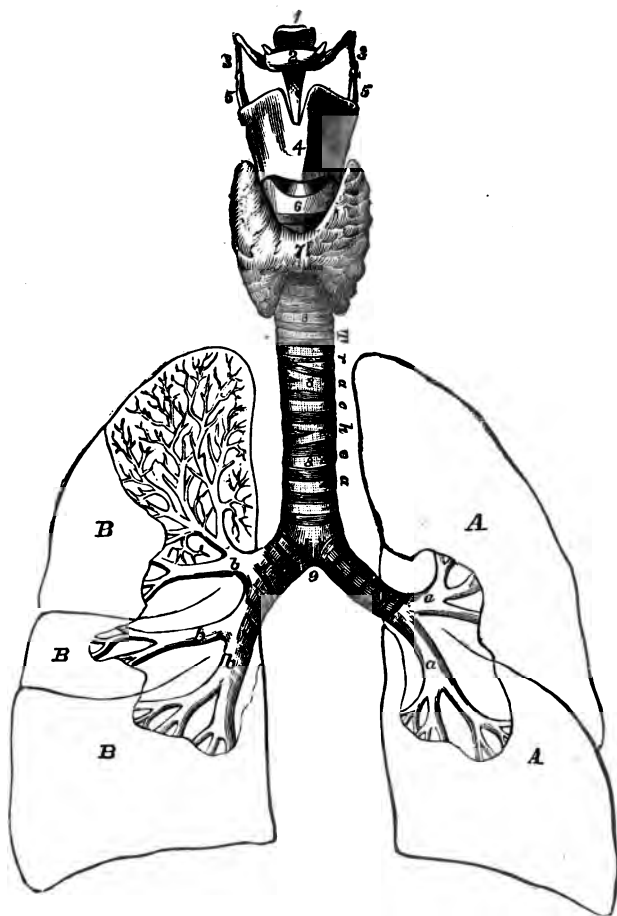


FIG. XIX.—For explanation, see page 50.

root of the tongue, with which it is connected by

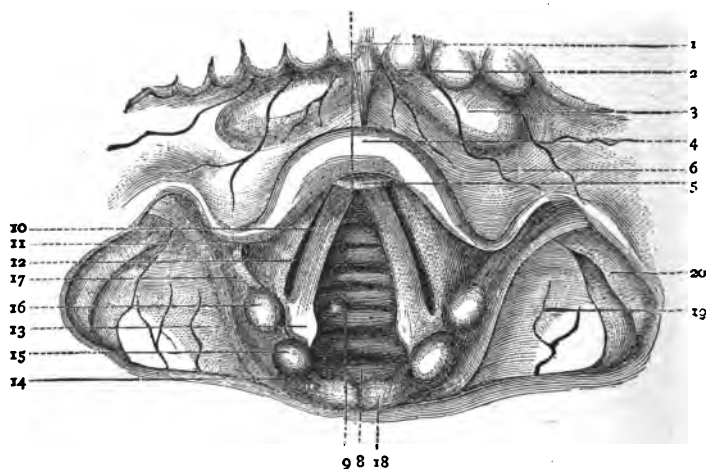


FIG. XX

IMAGE OF THE LARYNX AND SURROUNDING PARTS, TWICE THE ACTUAL SIZE.

1, base of the tongue; 2, epiglottic frænum, or middle glosso-epiglottic ligament; 3, vallecule; 4, epiglottis; 5, cushion of the epiglottis; 6, lateral glosso-epiglottic ligament; 7, anterior, and 8, posterior commissure of the larynx; 9, rima glottidis, 10, vocal cord 11, ventricular fold; 12, ventricle; 13, posterior vocal process; 14, arytenoid cartilage; 15, supra-arytenoid cartilage; 16, cuneiform cartilage; 17, ary-epiglottic fold; 18, posterior laryngeal wall, entrance to the œsophagus; 19, pyriform sinus; 20, hyoid fold of mucous membrane.

[Explanation to Fig. XIX, page 49]

A CONNECTED VIEW OF THE HYOID-BONE, THYROID BODY, LARYNX, WINDPIPE WITH ITS RAMIFICATIONS, AND LUNGS.

1 is the epiglottis, 2 the hyoid or tongue-bone; 1, 4, 5 and 6 show the larynx; 4 is the thyroid cartilage; 5, 5 are the superior horns of the thyroid cartilage, and 3, 3 the thyro-hyoid ligament; 6 is the cricoid cartilage, 9 the bifurcation; at 8, 8, 8 are seen tracheal cartilaginous rings; 7 shows the thyroid body, 10 the left bronchus and 11 the right bronchus. *A, A* show in outline the two lobes of the left lung into which the bronchial tubes *a, a* are seen to enter. The three lobes of the right lung are indicated by *B, B, B*, with the corresponding bronchial tubes *b, b, b*. In the upper lobe of the right lung is indicated in outline the manner in which the bronchial tubes subdivide into smaller and smaller tubes which finally terminate in air-passages and air-cells of the primary lobules.

means of the *hyoid-bone* (lingual bone). Right through the centre of the larynx two highly elastic cords extend from the shield cartilage, anteriorly, to the two pyramid cartilages posteriorly. They are called the *vocal cords*. On the one side they are firmly attached to the laryngeal wall, and the opposite sharp edge projects into the interior of the larynx. They meet at an acute angle at the depression between the two wings of the shield cartilage, but diverge from there backward, and leave an interval for the passage of air. This interval or free space, the *glottis*, or *rima glottidis* (chink of the glottis), is either an equilateral triangle, or, as in very deep inspirations, an almost perfect oval (Fig. XX).

By the air forced from the lungs, the vocal cords can be put into sounding vibrations, whereby voice is produced.

Under the shield cartilage is the ring cartilage, which connects the larynx with the trachea (wind-pipe). Over the rima glottidis we find the epiglottis, a protecting cover, projecting from before and below in an oblique direction backward and upward over the larynx. It is a pear-shaped, flat cartilage, which shuts down upon and closes the glottis when food and drink are to pass into the stomach, so that they must glide over the cover (Figs. XIX, XX, XXI).

Most changes of voice arise from narrowing and widening, and from lengthening and shortening, of the glottis, as well as from contraction and relaxation of the vocal cords.

SECTION 6.

TRACHEA (WINDPIPE, FIG. XIX).

The trachea is a cartilaginous tube, which can, like the rest of the air-passages, expand, contract and shorten by means of elastic fibres. It measures from three and one-half to four and one-half inches in length. Its superior end is connected with the larynx; thence it descends vertically into the chest, and divides in the region of the third dorsal vertebra into two canals, the bronchi (the left and the right bronchus), one of which leads into the right, the other into the left lung. The interior of the trachea also is lined by mucous membrane.

SECTION 7.

THE AIR-RECEIVERS (LUNGS, FIG. XIX).

The lungs occupy the greatest part of the thoracic cavity. They are divided into the right and left lung, connected above by the bronchi, branches of the windpipe, and between which the heart and the

largest artery (aorta) are situated. Each lung has a broad, concave base, by which it rests upon the diaphragm, and a rounded apex, which stands behind the first rib.

Each lung is divided by deep fissures, the right into three, the left into two lobes, and these again into numerous small lobules.

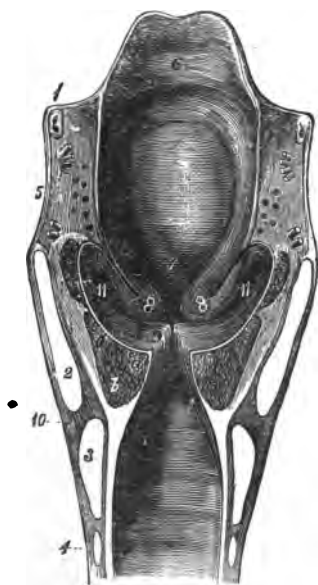


FIG. XXI.

VIEW OF THE INTERIOR OF THE LARYNX, THE POSTERIOR HALF BEING CUT AWAY.

1, 1, the greater horns of the hyoid-bone, cut across; 2, thyroid cartilages; 3, cricoid cartilages; 4, first ring of the trachea; 5, the thyro-hyoid membrane; 6, upper portion of the epiglottis; 7, cushion of the epiglottis; 8, ventricular fold, showing above it the wedge-shaped space of the upper laryngeal cavity; 9, left vocal cord; *a*, *b*, *c* showing the different portions of the interior muscle.

The activity of the lungs consists in *inspiration* and *expiration*. In the former the chest expands; in the latter it contracts.

The lungs do not represent a simple hollow space, like common bellows, but a very complicated tubular system. The *substance* of the lungs consists, especially at their periphery, almost entirely of very minute lobules, each of which possesses a narrow outlet (duct). These ducts combine to form gradually larger and larger canals, until, finally, the two before-mentioned canals, the bronchi, are formed, which in their turn form, by their union, the trachea (windpipe).

In inspiration the air passes through the glottis, trachea and bronchi to the air-cells of the lungs, whereby these are forced to expand.

The expansion of the lungs depends upon the size or expansibility of the thorax. It is, therefore, necessary to strive, by appropriate exercises, to make the chest capable of expansion.

The main function of the lungs is the removal of carbonic acid from the blood, and the introduction of oxygen.

PART SECOND.

THE ACTIVITY OF THE VOCAL ORGANS.

CHAPTER I.

PRODUCTION OF THE VOICE.

SECTION 1.

GENERAL REMARKS.

WE have learned from the introductory remarks that the voice is produced by the air contained in the lungs passing through the larynx, and thereby inducing sounding vibrations of the vocal cords.

The sound, then, is not produced in the oral cavity by any certain position of its organs; it exists the moment the air escapes from the glottis, although it certainly gains or loses by the position of the organs of the oral cavity and by the pharynx. It gains in euphony by a correct, natural position of the tongue, of the soft-palate, *i. e.*, by more passive than active position of these parts; and loses when these parts, acting in a wrong way, spoil the sound.

We know that the vocal cords, during respiration, diverge widely; that thereby an orifice, the glottis, of the shape of an equilateral triangle, or, in very deep respirations, of an oval, is left between them (Fig. XXII, 1). But to be put into sounding vibra-

tions, the previously diverging vocal cords must be brought into complete (Fig. XXII, 4) or partial contact (Fig. XXII, 6).

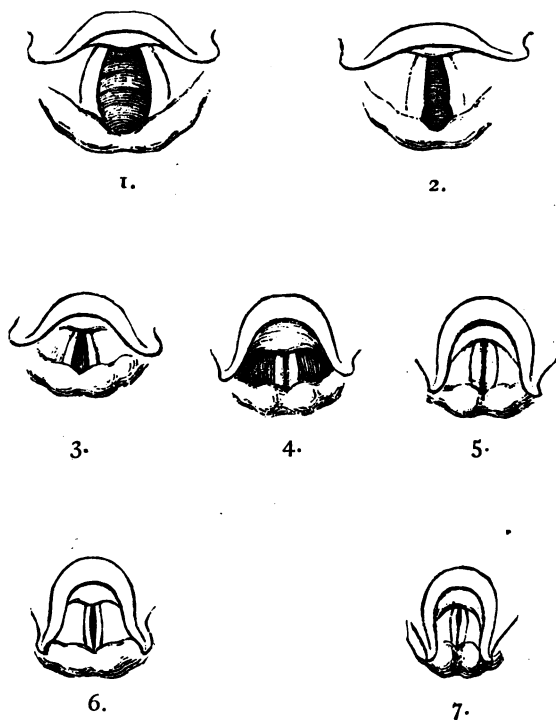


FIG. XXII

GLOTTIS IN ACTION.

- | | | |
|-------------------|------------------|----------|
| 1, Inspiration. | 4, Low chest | } tones. |
| | 5, High chest | |
| 2, Expiration. | 6, Low falsetto | } tones. |
| 3, Spiritus asper | 7, High falsetto | |

The previously large triangular or oval glottis contracts to a narrow chink, and the current of air is thereby for a time either entirely interrupted by perfect closure, or decreases in rapidity by incomplete closure, an impediment being formed to the expiration. Through this hindrance above, by the continuous pressure of the true expiratory muscles (the abdominal muscles), a great tension of the air contained in the lungs arises, and with that greater force of the air-current previously passing freely through the trachea, but now restrained by a narrow exit, it thereby becoming possible to bring the vocal cords into a vibratory and sounding motion.

The vocal cords having approached so closely that by their vibrations (alternate opening and closing of the respiratory canal, that is, continual interruptions of the air-current are produced) the air-current is brought into strong, sounding vibrations, and we receive the most beautiful sounds that can arise only from a union of the vibrations of the vocal cords and those of the air-current.

This approach of the vocal cords occurs in different ways. There are, accordingly, various modes of beginning the tone ("attack"): the "direct attack" and the "indirect attack."

1. The Direct Attack.

In the "direct attack" the vocal cords come into contact throughout their entire length, from the front backward, so that the lower part of the larynx is completely separated from the upper, and the approach of the vocal cords is rapid and decided; at the same time the vocal cords become shortened, and must, therefore, with the immediately following intonation, alter their degree of tension, their shape, length and thickness, according to the sound which is to be produced, and must separate somewhat. A tone thus produced will be marked and separated from other tones.

2. The Indirect Attack.

In the "indirect attack," on the contrary, the glottis is not completely closed by the approach of the vocal cords. Here their length, tension, shape, etc., are at once such as are required for the production of the desired tone, and, consequently, the vibrations begin immediately after the approach of the vocal cords without any change in the length or tension, as is necessary in the "direct attack."

3. The Spiritus Lenis and the Spiritus Asper.

Philologists have long ago subdivided this "indirect attack," and distinguish the *soft*—the so-called

spiritus lenis — and the *aspirated* (commencing with an *h*) — the *spiritus asper*.

In the “direct attack” the vocal cords come together rapidly, and completely close the glottis. In the *spiritus lenis* they approach just as rapidly, but do not come into contact. In the *spiritus asper* the approach is very slow and hesitating, as though there were a power which endeavored to retard their progress (Fig. XXII, 3). Whereas the “direct attack” is distinguished from the “indirect” by the closure of the glottis, the subdivisions of the “indirect” are distinguished not by the closure, but by the rapidity of the approach of the vocal cords. In the “direct attack” there is, moreover, a momentary interruption of the column of air, but not in the “indirect.”

A perfectly normally formed tone of the human larynx is one by whose production the entire expiratory air, passing at once through the glottis, is brought into permanent vibrations. We distinguish here the *normally* formed from the *aspirated* tone, which is impaired by *wild* air (that is, air not brought into permanent vibration), in which, therefore, the conditions of tone-formation are not perfect or not unimpaired. In *chest-tones* the glottis is momentarily closed at the beginning of the tone and

at the termination of each vibration. The vocal cords vibrate in their entire width and length. In *falsetto* tones the glottis remains open, and the vocal cords vibrate only at their edges.

We can, therefore, assume that there are four chief ways of expiration which are distinguished by a gradually increasing approach, to each other, of the vocal cords:

1. *Inaudible expiration — entirely open glottis.*
2. *Audible expiration — contracted glottis ; the noise of the letter h, spiritus asper.*
3. *The “indirect attack” — the vocal cords are so near each other that the exhaling air sounds, spiritus lenis ; and*
4. *The “direct attack” — completely closed glottis, which only opens when the tone commences to be produced.*

4. *Whispering.*

The second kind of expiration, the noise *h*, is used for the so-called whispering voice. But *whispering* must not be confounded with low speaking. The lowest speaking may still be full of sound, and should, for that reason, not be called whispering. It is not low sound, but the total lack of sound, that characterizes the latter. It is called *whisper-voice* because,

with the exception of the loud sound, it has all the essential marks of voice. Here, also, we find a "direct attack" and two "indirect attacks," as we have just become acquainted with them, and only the loud sound is missing. If, on account of a disease in the mucous membrane covering the vocal cords, the latter are in such a condition as to be unable to approach each other, then not only sounds of the whispering voice, but even the laryngeal noises, become impossible, or can be clearly heard only by a great strain and force of the exhaled current of air. It is, therefore, entirely wrong to explain the origin of the noise *h* in the manner in which it has been generally explained; viz., that the air, escaping from the larynx, bounds against the pharynx, or any part of the oral cavity, and that there a noise is produced. Not in the oral cavity, nor in the pharynx, but in the *larynx* is the noise *h* produced. Through air that is exhaled only, can a sound be formed. Air that is inhaled, at the utmost produces a noise.

5. *The Force of the Voice.*

The *force of the voice* is dependent on the condition of the organs of respiration—the chest, the lungs, the larynx, etc.,—but its *metal* depends on the condition of the mucous membrane that covers

the larynx as well as all air-passages. The *ability of contraction* and *vibration* of the vocal cords, as well as the *higher* or *lower* position of the larynx, and the shortening or lengthening of the glottis, decide the height or the depth of the voice. The fewer the vibrations of the sounding body in a certain period of time, the deeper, the more vibrations, the higher will the sound be. The deepest audible tone has sixteen vibrations, the highest thirty-eight thousand vibrations in a second.

6. *The Influence of the Air-pressure.*

As to the influence of the air-pressure upon the quality of the loud voice, it is certain that by a *stronger* pressure of air the sound of the voice will become stronger, but it will also become *higher*.

If, by a stronger pressure of air against the vocal cords, you wish to prevent the heightening of the sound, a consequent remission in the contraction of the vocal cords is necessary; if, on the contrary, the strength of the sound is to be weakened without suffering a change in its height, then, with the decreasing of the pressure of air, the contraction of the vocal cords must increase. We find an example in the "crescendo" and "decrescendo."

A metallic *piano* can be produced only when the

muscles of the vocal cords work with greater energy, while the pressure of air from beneath becomes weaker through the diminished contraction of the abdominal muscles.

The peculiarity of so many singers in producing the higher notes of the chest-register by a greater expenditure of breath and a pressure of the muscles of the neck, is entirely wrong. It is a law in nature that the larynx rises by heightening and falls by the deepening of the sound, but there should be no pressure on the muscles of the neck, for thereby the natural function of the larynx is hindered.

A too great expenditure of breath, or concussion of the vocal cords, will be followed by screaming tones, and not only that, but the vocal cords will in time lose their elasticity, and with this their ability of vibrating. *This is the cause of the ruin of so many voices.*

Now, is the tone produced by the vocal cords in the larynx sufficient for speaking and singing? Certainly not.

The tone produced in the larynx could not be used for music without the *resonator*. This is composed of the cavities above the larynx, viz., the pharynx, the oral and nasal cavities. Through

these the sound produced in the larynx by the vocal cords receives a greater variety in tone-quality, more fulness, roundness, and in general its beauty.

7. *The Timbre.*

The peculiar, variable character which everything that is spoken or sung, every tone-register, every tone, apart from its intensity, can assume as soon as the sound produced in the larynx has entered into the pharynx, Garcia (the inventor of the laryngoscope) calls *timbre* (the real tone-quality).

This timbre of the human voice allows (according to Garcia) of several modifications,—guttural, nasal, round, hollow and dismal; but these may be reduced to two main timbres—the *light* and the *dark*.

If the mouth is opened wide, and if, on account of the high position of the larynx, the opening of the pharynx is but small, the LIGHT timbre is produced; if the mouth is opened little, and if, on account of the low position of the larynx, the width of the pharynx is great, the DARK timbre is produced. (More on this in Part IV.)

EXERCISE.

RISEING AND SINKING OF THE LARYNX.

Speak the *pure* vowels E, A, A', O, O', O'' as described in Part III, "General Observations," without any exertion of the outer muscles of the larynx. You will find that

in beginning with E and ending with O" the larynx gradually *sinks*; on the other hand, in beginning with O" and ending with E the larynx gradually *rises* (see E and O" in the description of these vowels, Part III).

This is the process of nature, and you cannot hinder it except *by force*, in which case you will produce squeezed tones. When you have spoken the *pure* vowels often in the way above-mentioned, you will get the *consciousness* and the *ability* to carry out these movements at will, *without* speaking the pure vowels.

An excellent exercise for promoting the ability to carry downward the larynx, is to practice the singing of the chest-tones with the mouth closed, as this can be effected easily only with depressed larynx and raised palate. If we raise or press upon the larynx, we shall have nothing but squeezed tones.

By means of the light timbre the chest-tones receive their lustre. It is particularly adapted to the expression of delicate and joyful feelings, but by too great a strain the voice sounds screaming. The dark timbre gives to the chest-tone the rounded fulness and might. It is particularly adapted to the expression of the solemn, of pain and sorrow. If exaggerated, the tone is smothered, and becomes hollow and rough.

According to Garcia, the effect of the timbre can also be distinctly felt in the falsetto tones, although in a less striking degree than in the chest register.

We have been often asked: "What is your opinion? Shall I practice only the *dark* or only the *light* timbre? My teacher always said that I should practice the first."

What shall we answer to this question? And let it not be believed that this teacher is the only one who thinks so; numerous examples prove the contrary. Here and there we still find people who are of the opinion that we can cultivate a nice voice existing alone, and not dependent upon the feelings of man. This is certainly possible, and to our sorrow we must too often listen to such a voice; but such tones will not be able to reproduce man's feelings. If this is to be the case, the voice must be cultivated in such a way as to be capable of producing every shade of sound. As already stated, the two principal timbres are light and dark, and each of these, by correct cultivation of the voice, allows as many shades as man is able to produce.

In singing or speaking only feelings are expressed, be they feelings of pain or of joy. Sounds without feeling are, consequently, not singing. Many modern singers do not sing feelings, but sounds; and it is impossible that it should be otherwise. Feelings can appear in the sound only when the voice is used in a *perfectly correct* manner, and when the voice is *free* from all mannerism. Where this is not the case we hear sounds which, by means of all sorts of expedients, as, for instance, lower, louder, slower or quicker singing, are to be shaded differently, but always we hear the same shade of tone and lack of all feeling. Consequently, in art the human voice cannot be said to exist without feeling, and this does not express itself in the light or the dark, but in *both* timbres.

In old age the vocal organs lose in elasticity, whereby the organs of respiration become wider, and, consequently, the voice loses its metal.

8. *The Compass.*

The human voice has a *compass* of about two, two and one-half, to (as the celebrated Catalani) three octaves, and is divided into different kinds, called soprano, alto, tenor and bass; or soprano, mezzo-soprano, alto, tenor, baritone and bass.

This diversity in the human voice is caused by the construction of the vocal organs, *i. e.*, by longer or

shorter vocal cords, smaller or larger size of the larynx, and even by the elasticity of the air-passages and the force of their resonant walls.

The vocal cords of children and of women are shorter (consequently the glottis also, and, therefore, their voice is higher and finer) than those of men.

9. *The Mutation of Voice.*

The period of *mutation* (*i. e.*, the development of the boy to youth and the girl to womanhood) has great influence upon the voice, and should not be neglected by parents and teachers. It is indicated by the voice becoming hoarse and rough, and frequently producing double sounds (more to be noticed in the male than in the female sex), and, if the voice is to develop naturally and to advantage, the vocal organs should be spared. We do not mean to say (what so many affirm to be absolutely necessary) that during the period of mutation all exercises in singing are to cease. This is necessary only when the voice is entirely hoarse. On the contrary, even in this period, exercises for the voice are very advantageous for the development of the vocal cords. It should be well understood that the exercises must be easy, very moderate, in no way forced, and not long continued.

10. *Registers of the Voice.*

Man can produce different kinds of tone, according to the way he allows the air to pass from his lungs, by more or less stretched vocal cords.

A tone can be produced twice from the same vocal cord by strong breath and weak stretch, and by weak breath and strong stretch; in this way the several registers of the human voice originate.

Every compass of voice in individuals of moderately good voice is composed of two to three rows or registers of tones, partly following or lying over each other, which allow various sounds to be heard, and which are caused by various vibrating mechanisms of the vocal cords. By a register of tones we understand a continuous longer or shorter row (scale) of tones, which are produced by an instrument by one and the same vibrating mechanism, whereby the general timbre of the tones may not be changed. As soon as a noticeable difference in the color of the tone (timbre) takes place, then the tone always belongs to a register different from that of the first tone.

Notwithstanding all seeming differences of opinion upon the registers of the human voice, experience clearly shows that there are principally *two* registers of voice in the male vocal organs — chest and fal-

setto register. In the female organ *three* registers may be clearly distinguished :— a low, a middle and a high one, of which the hearing can noticeably distinguish the low from the middle one.

SECTION 2.

Chest-Register (Fig. XXII, 4 and 5, and Fig. XXXII).

In every singer, whose voice has not been cultivated in a wrong way, we hear that he can strike the general row of his natural tones, from the lowest up to a certain height, with a full breath; these are the tones that a man uses in general speaking and declaiming, but which women use only under certain circumstances. They are correctly called *chest-tones* because by the man, at least, they are formed not only with full chest, *i. e.*, with full, well-used breath, and are allowed to swell strongly, but because they resound in the full extent of the chest, and thereby reach their fulness and size. The hearer has the feeling of the full, the natural, the healthy, the strong. In the *woman*, however, these tones of the low register make the impression of something foreign to the female nature, and here they are the expression of a state of emotions which we are apt to find in a man, but not in a woman.

SECTION 8.

FALSETTO REGISTER (FIG. XXII, 6 AND 7, AND FIG. XXXIII).

If a singer tries to reach higher notes with his vocal organ than he is able to do with his chest-mechanism, we not only find a certain change in the mechanism of the tone, but also a noticeable change of the timbre; we feel that not all that was set into vibration by the chest-tones is vibrating now, and the tones produced do not make the impression of the full, the natural, the marked, the strong, upon us, but remind us rather of something abnormally weak or feminine. In woman this register, which does not here deserve the name of *falsetto*, but should be called *middle* register, is altogether different. The falsetto or middle register is the chief one of woman; it sounds better, fuller and nicer than a man's falsetto, and it is more consistent with the feminine disposition and character than her chest-register, which sounds better in a man. While a man usually sings, speaks and declaims in the chest-register, most women, single as well as married, use their middle register.

The falsetto register does not commence only at the end of the chest-register; it can even commence

in the middle, and in women still lower; and for this reason a certain number of tones can be sung in both registers.

The entire number of tones which can be produced in a larynx, therefore, consists of three divisions, viz.:

1. *Tones which can be produced by the chest-voice only.*
2. *Tones which are possible in the falsetto voice only; and*
3. *Tones which can be produced by both the chest and falsetto voice.*

The tones under (1) are the lowest, those under (2) the highest, and those under (3) embrace a middle register depending for its larger or smaller size upon the individual to whom it belongs.

The cultivation of those tones which can be produced by both chest and falsetto voices, requires great study, and in their correct use (*i. e.*, already to take the falsetto tone where the chest-tone might still be taken, and vice versa still to remain two or three tones in falsetto, where the chest-tone might already be taken) frequently lies the wonderful sympathy, the irresistible attraction of the speech and song of so many speakers and singers.

CHAPTER II.

PRODUCTION OF THE VOICE IN SINGING AND SPEAKING.

SECTION 1.

THE QUALITIES OF TONE.

AS already stated, the tone originates in the glottis by means of air expelled from the lungs through the larynx.

The qualities a tone must have to give entire satisfaction are :

1. *Metallic.*
2. *Clear (of the right height).*
3. *Strong and full.*
4. *Firm, not trembling, and*
5. *Durable.*

Let us look more closely at the premises which cause these qualities.

A strong, healthy chest and good respiratory and vocal organs must be named as the first condition for the production of a tone ; without these a good tone is impossible, although it is not thereby said

that these qualities alone will cause a good sound to be produced.

The quality of the *mucous membrane* covering the vocal cords, as well as the *power of vibration* of the vocal cords themselves, the width of the fauces and the oral cavity, the amount of air the nose is able to hold, as well as the pharynx, the thickness of the soft-palate with the uvula and of the tonsils, greatly influence the tone. All of these may be influenced to advantage. The sooner this is done, the more advantageous it will be.

We know that the tone produced in the larynx only reaches its variety in timbre, its fulness, its roundness, and altogether its beauty, in the resonator. We add thereto, *but only by correct use of the resonator.*

“Can the resonator be used incorrectly?” I have been often asked. Certainly! The resonators of *artificial* instruments cannot be used incorrectly, for they cannot be changed; but the resonator of the human vocal organs is capable of great changes—changes which are caused on one hand by speech, on the other hand by incorrect use of the organs *at* and *in* the resonator to which lips, teeth, tongue, soft-palate and tonsils belong.

In order to use these organs correctly, it is necessary that we should attain a complete mastery over them by means of gymnastics, and know how they should be used. In this mastery great results can be obtained if we have the will to attain them.

The Metal and Clearness.

The *metal* and *clearness* of a tone depend upon the condition of the mucous membrane covering the

vocal cords, and the slightest change in this (drier, moister, thicker, harder than necessary) has a disadvantageous influence upon the metal of the tone.

The Strength.

The *strength* of the tone may be increased if the chest and lungs are widened by means of deep breathing and gymnastic exercises. (See Part IV.) As these exercises also strengthen the organs of respiration, the evenness of the tone is also influenced, as this depends upon the evenness with which the air is expelled from the lungs.

The Evenness.

The *evenness* of the tone depends upon correct breathing, and will be treated under "Breathing."

The Power of Duration.

The *power of duration* of a tone depends upon the strength of the muscles of the larynx, and can be attained only if these parts are nourished by animal food and by a gradual heightening in singing, but never without allowing the necessary rest to follow.

This is the case not only with the singer, but also with the orator, as we shall see further on.

How the voice gains in height and depth will be shown in Part IV.

Before the muscles of the vocal organs have attained the necessary strength, the voice will always more or less vary from the correct pitch, as well as tremble. This may also be in case of poor musical hearing and of poor method of teaching. *Strengthening of the voice, cultivation of the hearing, and correct method of teaching are the chief conditions for the prevention of singing out of tune.*

Tonsils that are too large must be made smaller by means of caustic or tincture of iodine.

What the condition of the organs of respiration should be has already been told in the discussion upon the lungs, the windpipe, the larynx and the muscles, and will be treated further in Part IV. Here we must only speak of the *production* of the tone and of the *position* of the necessary organs.

SECTION 2.

POSITION OF THE BODY.

When the *body* is in a quiet position during the production of the tone, the following directions are to be observed:

The body should not be distorted in any of its

parts. It must stand straight, with protruded chest, the shoulders back. The chin should not be held high or low, but should have a horizontal position.

The *neck* must set free and unforced upon the shoulders, and not, as we frequently see, *between* them. The shoulders should not accompany the tone or word with rising and falling in order to give it a particular expression. It is understood that shrugging of the shoulders, as well as some few cases in which the shoulders may move, are excepted. To the latter, among others, belongs the representation of fright, whereby the neck, and, consequently, the head fall between the shoulders, etc.

The *arms* should not be pressed against the sides of the body, but should hang light and unforced (in which case the pushing back of the elbows, an often noticeable mistake of women, will be prevented), and when they are moved it must be done without any excessive straining of the muscles.

SECTION 8.

POSITION OF THE LIPS AND ORGANS IN THE ORAL CAVITY.

The organs in the oral cavity and the lips must be placed according to rule:—The jaws separate a

little, the lips are slightly drawn back from the teeth (in *a* as in *father*, *a* as in *fate*) as in a friendly smile, whereby the tips of the teeth become visible, but without allowing any strain to appear, or that one lip is drawn back more than the other. But in *e* (in *eve*), *o* (in *old*), *oo* (in *ooze*), the lips should be held as is described in Part III; but they should not, as we often find in noted singers, be pushed too far forward, whereby they get the appearance of a carp's mouth; nor may they close on one side of the mouth and open wider on the other, thereby forcing the tone to pass unclearly and poorly from the side of the mouth.

We often find other mannerisms of holding the lips, and for that reason we mention them: One is the so-called *pointing of the mouth*, whereby the opening through which the tone has to pass becomes so small that a clear, full tone is impossible; and the other is the holding and pressing of the under lip upon the teeth, while the upper lip is pulled from the teeth

The mannerism of opening the mouth wide during production of high tones and of reducing it to its minimum opening in production of deep tones, is entirely incorrect. The width of the jaws and opening of the mouth (during production of tone) is

normal when we can put the thumb between the teeth. The singer should always attempt to reach the normal opening, although this opening undergoes various modifications by the formation of different vowels.

I cannot understand why singing teachers are not stricter about the position of the mouth and of the organs of the oral cavity, as a pure, clear tone is impossible with incorrect position of these organs.

I once had a pupil who (having had a few years' musical education in Paris) sang with the most disadvantageous and ugliest position of the mouth; it required the greatest strictness on my part, and the most continual diligence on the part of the pupil to change these incorrect positions of the lips, for they had become her second nature.

Singing teachers cannot, therefore, be told too often: before all, be particular about the correct position of the mouth as well as of the organs of the oral cavity.

The *soft-palate* must be raised as much as possible, the tonsils (altogether the side walls of the soft-palate) should not be pressed together.

The knowledge how to hold the palate is of the greatest importance to singers and speakers. The disagreeable singing of so many comes from their not having learned how to lead and break the waves of tone correctly by means of the soft-palate. This is an art the attainment of which requires a long period of time, but the singer must obtain possession of it, for he who cannot regulate his palate, will never learn how to sing.

The *faucës* must be as wide as possible and should not be decreased in width by the tonsils.

SECTION 4.

IMPORTANCE OF A MOVABLE TONGUE.

In the production of tone unconnected with speech (singing the vowel *ah*, see Part III), the tongue must lie horizontally in the mouth, the tip touching the lower row of teeth, but without rising over it. In the middle of the tongue a small depression is formed, similar to the form of a cylinder cut through lengthwise. Not under any circumstance should it extend into the oral cavity in the shape of an arch, which happens more or less in forming the other vowels (see Part III, "The Vowels"), nor should it contract spasmodically at its root, nor press downward upon the larynx whereby the oral cavity becomes smaller, and the resonance of the tone is injured. If a word is connected with a sound, the different vowels demand their several rights (see Part III), but we should always strive to bring the tongue into the position required by the rules for the formation of tone. It is only necessary to remove the tip of the tongue from the lower teeth in the formation of the different dental and palatal consonants (see Part III, "The Consonants"). Its entire activity consists in the mobility of its tip and

the raising of its back, but never in spasmodic contraction backward, downward nor toward the soft-palate; and exactly this occurs in the incorrect use of the tongue.

CHIEFLY NECESSARY FOR EASY SPEECH, THEREFORE, IS A MOVABLE TONGUE, AND FOR GOOD SINGING A QUIET TONGUE.

As soon as the tongue is contracted spasmodically in any direction, a squeezed, disagreeable, unclear sound is produced, which most people regard as characteristic of the voice of the individual who uses it, but which, if formed by the same organs according to rule, may become a beautiful tone. No one need, therefore, believe that these squeezed, disagreeable sounds are natural qualities not to be got rid of; they are only the result of a poor method, and we will undertake (let it be well understood if the person has the necessary diligence) to free any one's voice from this nightmare.

Laryngeal, nasal, and palatal tones occur as frequently in speaking as in singing, but they are more noticeable in the latter.

A palate-tone speaker or singer need, therefore, not console himself with the idea that it is his fate to be obliged to use these sounds, but should accuse himself as the murderer of his voice.

SECTION B.

CORRECT USE OF THE TONGUE.

The *correct use of the tongue* is very difficult to attain, and only by means of gymnastic exercises for the tongue, such as are given below, will the

scholar be able to make it movable, so that instead of being in his way it will aid him.

It is not to be believed how little most speakers (singers, only, partly excepted) understand how to use their tongue correctly. With most it is nothing but a helpless lump of meat which is in the way of every tone and word, and I have often met colleagues who were not able to move their tongue independently. I have even heard some say: "My tongue is in my way." This sounds as if in shooting a soldier should say: "My gun hinders me, I wish I could shoot without it." Some will smile at this saying, and yet I have often heard it and understand it very well. The tongue really hinders by incorrect use (before it has been mastered by means of exercises), and clear singing and quick, flowing speech are impossible without correct action of the tongue.

Most peculiarities and singularities in pronunciation have been altered by means of correct use of the tongue; and still we find numerous artists who, if we wish to prove to them that their poor singing is caused by the spasmodic contortions of their tongue, laugh in our face.

These exercises are to be practiced not with the *tongue alone*, but also with the *soft-palate, lower jaw and lips*.

EXERCISES FOR THE TONGUE, SOFT-PALATE, LIPS AND LOWER JAW.

TONGUE EXERCISES (before a looking-glass).

Exercise I.

Open the mouth wide, but not too wide (this is meant for all exercises); let the tongue rest quietly without any pressure flat on the bottom of the oral cavity, the point touching but not pressing the front teeth; breathe lightly in and out *through the mouth* (four, six times), not allowing the tongue to move in the very least.

Exercise II.

Protrude the tongue as far as possible without any pressure and independent of the muscles of the larynx;

keep it out four seconds, then draw it back as far as possible. Keep it back four seconds without closing the mouth. Begin slowly (six times), growing faster by degrees (ten, fifteen times in succession). Protrude the tongue during expiration, draw it back during a deep inspiration through the mouth, the nostrils held closed by thumb and fore finger.

This exercise is to be repeated frequently while he who practices should try to become conscious of the muscles by means of which this is accomplished (for the knowledge of the muscles to be used at all times is the chief requirement). He will find that in drawing back the tongue its root will contract and thereby push down the larynx; while in protruding the tongue, its root will come forward and the larynx will be drawn up. With this exercise let him combine the raising of the soft-palate, for while (during the production of a tone) the tongue should not form an arch which protrudes into the oral cavity, the soft-palate should not be drawn too far downward, in order to fulfil the first condition of a full, clear tone, viz. : wide fauces and wide oral cavity.

Exercise III.

Open the mouth wide, move the tip of the pointed tongue to the corners of the mouth *alternately* to the right and left (six times), *having the direct intention to strike the corners* (for purposeless work is only a mechanical action and will not lead to success); then growing faster by degrees (ten, fifteen times in succession). Do not hold the breath during this exercise, but *breathe quietly and regularly through the mouth.*

Exercise IV.

Open the mouth wide, touch with the tip of the sharply-pointed tongue the middle of the upper and of the lower lip alternately; begin slowly, *with the direct intention of letting only the outermost tip, not the entire front part of the tongue*, touch the middle of the lips (six times), then growing faster (ten, fifteen times).

Exercise V.

Open the mouth wide, place the tip of the pointed tongue into one corner of the mouth, proceed with

sharply-pointed tongue in dotting fashion along the upper lip to the other corner; then on the under lip to the starting point; repeat the same movement backward to the starting point.

Exercise VI.

Open the mouth wide, touch with the tip of the very sharply-pointed tongue the roots of the upper middle incisors, as if to make a dot there, and then, *touching the palate in such dotting fashion* with the tip of the tongue, proceed back as far as possible; then go forward again, always breathing through the mouth (inspiration while the tongue goes back, expiration while it goes forward, six times), both ways.

Exercise VII.

Touch, in the same manner, the bottom of the oral cavity, backward and forward.

Exercise VIII.

Open the mouth wide, touch with the tip of the sharply-pointed tongue the *middle* of the *upper* lip, then of the lower lip and, without pausing, the right and left corners of the mouth (ten, twelve times), slowly at first, growing faster by degrees, alternating thus: upper middle, lower middle, right corner, left corner, upper middle, lower middle, left corner, right corner, always with the sharply-pointed tongue.

Exercise IX.

Open the mouth wide, touch with the tip of the sharply-pointed tongue the middle of the right side of the upper lip, then that of the left side of the upper lip; first slowly (six times), then faster (six times), without any movement of the lower jaw.

Exercise X.

Repeat the same exercise with the lower lip, without movement of the lower jaw.

Exercise XI.

Combine these two exercises in the following manner: Begin at the upper right side, proceed to the lower left, thence to the upper left and then to the lower right, so that this figure, \times would be produced; at first slowly (six times), then faster (six times).

Exercise XII.

Open the mouth wide; proceed with the tip of the sharply-pointed tongue from the right to the left, brushing the upper lip and passing along the lower lip back to the right without interruption (six times), slowly; then (six times), growing faster by degrees; repeat from the left to the right in the same manner.

Exercise XIII.

Repeat the same exercise along the inner side of the lips. During this exercise touch the lips sharply with the tip of the tongue. Do not open the mouth too wide here.

Exercise XIV.

Repeat the same exercise along the outer side of the lips.

Let it be borne in mind that the purpose of these exercises is to sharpen the tongue, and that they must be faithfully performed.

Exercise XV.

Protrude the root of the lowered tongue without allowing its tip to pass beyond the front teeth (ten, twelve times).

Exercise XVI.

Sing a tone (*ah*), holding it as long as possible, without allowing it to lose its clear character, and at the same time try to make a circling movement with the tip of the tongue; and later, when this exercise has been fully

mastered, try to make a horizontal movement with the tip of the tongue from one side of the mouth to the other, first slowly and then gradually increasing in rapidity.

To hold down the tongue by means of a stick or the handle of a tooth-brush, I do not consider at all beneficial. He who does not learn to move the muscles of the tongue independently, will not derive any aid by forcibly holding down the tongue, or the aid will only last as long as the forcible pressure continues. The only radical cure for the incorrect activity of the muscles of the tongue lies in its perfect control, *and this control can only be obtained by means of the exercises prescribed.*

He who, during the activity of the muscles of the larynx, is able thus to move the tongue, will also be able to keep it in an inactive state.

THE SOFT-PALATE.

Exercise XVII.

The *exercise for the soft-palate* consists in opening the mouth wide, and attempting to raise the soft-palate *without singing*. Here also it would be serviceable if the raising of the palate occurred during deep inspiration through the mouth, the nostrils being closed.

THE LIPS.

Exercise XVIII.

The *exercise for the lips* is the following: Attempt to move them *singly*; for instance, draw the under lip downward without allowing the upper lip to move, and vice versa. Produce a tone, hold it a while, and make the same movements of the lips. He who has mastered the muscles of the lips singly, can let them rest when they are not to act.

THE LOWER JAW.

Exercise XIX.

Sing and hold a tone, moving the lower jaw (without any pressure upon the larynx) horizontally to right and left, and then describe a slightly circling movement. The object of this is to free the muscles used in chewing.

Great diligence is needed to attain the ability of moving the lower jaw correctly, and we consider it very necessary to call attention to a mannerism, which we shall do in Part III, under "Correction of Defects." In passing, we will remark that a certain stiffness or incorrect use of the lower jaw is the consequence of the habit of setting other *unnecessary* muscles into activity in the use of the larynx and the tongue.

I have met speakers and singers whom I really pitied. The veins of their neck swelled to the thickness of a small finger; the neck itself attained an unusual size, their face became red as fire and their eyes, whose whites had become reddish, protruded from their sockets. And all this on account of incorrect activity of their muscles, ignorance of the correct method of breathing and ill-treatment of their vocal and articulating organs. The consequences thereof were a quick, noticeable tiredness, even after slight tasks, and finally a total disability of the vocal organs. And it is curious that these people look for the cause in everything else but in this mistake.

A particular peculiarity of people who speak and sing in this manner, is the compression of the upper chest by the shoulders and arms, and a permanent shaking of the head, as well as the lifting of the chin by spasmodic action of the muscles of the neck.

I have known singers who thought they could not sing a high tone without crossing the arms upon their chest, as if imploring, and thus, instead of freeing the chest of all pressure, pressed it together.

A false activity of the muscles occurs oftener, both in speaking and singing, than we think. A young man, who, after twelve years of troublesome practice in art, had not, with all diligence, passed the beginning; whose organs, though good, were almost spoiled by wrong use, determined to become my pupil. After three months' activity, having freed him from the nightmare that lay upon his organs as well as upon his heart, he was satisfied with the total change that had come over his being. He confessed to me that he had formerly not been able to appear upon the stage without straining all his muscles in the most unnatural manner; and when reproached for not being able to walk, stand, or move, he had sorrowfully asked himself, "What shall I do?" Despairing, he began to think that nature had neglected him, and that he must waste his life—and he was a good-looking young man, blessed with all other advantages. When he had become entirely changed, the regret for the twelve years he had wasted mastered him and he wept. I could only comfort him by holding before him the fine prospect for his future career. I could name dozens of similar instances, but will only make the following remarks:

We are too apt to regard every peculiarity of an organ (caused by incorrect use) as something peculiarly given by nature to that organ only, and we can be assured that (not counting a certain timbre peculiar to each voice) such an organ would sound altogether different, and would hardly be recognizable if, in the production of the tone, the activity of the muscles were a correct one. Many persons, by a slight but noticeable speaking through the nose, by a mannerism of always speaking high or low, strong or weak, pointed or screaming, through the teeth, or otherwise forced, attain a certain individual coloring which is lost as soon as the organs are used correctly.

When a person is inclined to use the larynx incorrectly, or generally to act with incorrect muscular activity, then, as a general thing, all the muscles are strained unnaturally, and thus hinder the free development of the organs.

SECTION 6.

HOW TO PREVENT UNNATURAL STRAINING OF THE MUSCLES.

An unnatural straining of the muscles can only be overcome by the pupil, while speaking and singing in a certain tempo, making certain movements with his arms in a different tempo, and also by slightly turning the head to the right and left while the tone continues, and by generally preventing the limbs from assuming a stiff attitude.

SECTION 7.

TONES PRODUCED BY INCORRECT USE OF THE ORGANS.

Four tone-colors in particular are produced by incorrect position of the organs:—

1. *Palatal tones.*
- 2. *Nasal tones.*
3. *Guttural tones.*
4. *Dental tones.*

The theory of the palatal and nasal tones is the following: In both kinds of sound the position of the larynx, the lingual bone and soft-palate changes in comparison with their position *without* these kinds of sound. In the palatal tone their position is higher, in the nasal sound it is deeper. In both cases the middle of the tongue is pressed upward toward the palate, and the more one or the other of these sounds is expressed, the more is this done. In the palatal tone the current of air is too much impeded by the contracted soft-palate and the spasmodically-arched tongue, whereby the space above the larynx becomes too small. If the larynx is forcibly pressed downward, and the pharynx contracted, the so-called throat or *guttural tone* is produced.

If the soft-palate is allowed to hang loosely or is not held firmly against the posterior wall of the throat (as the formation of every pure tone requires), so that the vibrations of the air-column are directly communicated to the air in the posterior nasal cavity, there results what is known as the *nasal tone*.

It is, therefore, a mistake to suppose that the nasal tone can result only through the escape of too much air through the nasal passages. The nasal tone may be produced even when the nose is kept closed, so that it can only proceed from the vibration of the air in the posterior nasal cavity. *How the palatal tone may be got rid of will be shown in Part IV.*

When the jaws are not separated sufficiently the result is the *dental tone*.

It is, of course, plain that there ought to be no gaps in the teeth, and that in case there are any, recourse must be had to artificial teeth.

SECTION 8.

HOW TO PREVENT NASAL TONE.

To prevent the tone in song or speech from having a *nasal* character, the following exercise should be resorted to:

Exercise XX.

Bring the organs into the proper position for the production of a tone (as has been described); then sing or speak while keeping the nose shut, and see that, in spite of this, the tone does not become nasal.

This exercise is excellent, for, the nose being shut, the palate must in consequence be elevated and the tongue be kept perfectly immovable, if the tone is not to become nasal.

The larynx, being movably seated on the likewise movable and extensible trachea and connected with the loosely suspended hyoid-bone, must always be drawn more or less downward and be held fixed by the force of the muscles, if any definite tone is to be produced in it, for the more or less greatly increased air-pressure tends to press the larynx upward and to alter the number of vibrations of the tone.

SECTION 9.

DEPRESSION OF THE LARYNX.

The *depression of the larynx* should not be the same for every gradation of tone (as many teachers of singing demand of their pupils), but its position *should vary with the formation of the different vowels, each of which requires it to be in a special position.*

Having described the correct use of the resonator and its internal and external organs, we must state that the fundamental principle with regard to tone-formation, as far as the resonator and its organs are concerned, is that the air poured from the lungs must not be allowed to be affected either by the tongue, the palate, or the tonsils, or by forcibly raising or depressing the larynx, and should be made to pass over the flatly or, better still, concavely held tongue, and escape between the jaws held in exactly the right position. The *manner* will be explained under the head of "Breathing."

Let the tones (the sound-waves) issue from the lungs without any pressure of the vocal organs, and they will always reflect our sensations. If the contrary is the case, we have tones compressed, not susceptible of modulation, and whose unnatural formation cannot, for a moment, be concealed.

I cannot refrain from making a general observation here. I have often heard those of my pupils, whom I have enabled to get rid of palatal tones, and whose voice has received an easier and freer development generally, make the strange remark that it was no longer an exertion for them to sing or to speak. So little idea have such persons of the effect of a method, that they imagine that, when they adopt a given method, the exercise of it will be accompanied with a certain amount of extra exertion.

The organs having been placed in exactly the right position, the air must be allowed to pass out very gently from the lungs. Most singers and speakers are particularly apt to fail in this; for, to emit the air properly from the lungs, requires special skill,—a skill which, unfortunately, we seldom find in artists.

There are six conditions which singers and speakers have to fulfil, if they desire to bring forth correct and beautiful tones, or to achieve success in their art:

SECTION 10.

THE CONDITIONS NECESSARY FOR A BEAUTIFUL TONE.

1. The air must pour out slowly. •
2. It must not be violently ejected, but should, so to say, be spun out.
3. It must impinge against the roots of the upper incisors, at the hard-palate (see Part IV).
4. The inspiration must be inaudible.
5. No more air must be permitted to escape than

is absolutely required for the tone; and, consequently,

6. The tone must not have an aspirated character.

As the fulfilment of these conditions is intimately connected with the whole question of correct breathing, a more detailed explanation will be found under that head, where some other points connected with tone-formation are also discussed. *It is not proposed here to lay down a complete method of singing, but to set forth the correct method of tone-formation for singers and speakers.*

CHAPTER III.

PRESERVATION AND STRENGTHENING OF THE VOCAL ORGANS.

WHOEVER desires to preserve his voice (whether the singing or speaking voice) must closely observe the following rules. It is to be regretted that circumstances do not always permit of their observance, yet their neglect through any avoidable cause can never be justified. Such neglect has often to be atoned for with a long indisposition, if not with the loss of the voice.

1. In the first place, the air we inhale must not be too cold and too raw; inflammation of the mucous membrane of the larynx, and especially of the vocal cords (hoarseness), is the usual consequence.

2. The air must be pure and not vitiated with smoke (especially tobacco smoke), dust, or noxious gases. Frequently recurring catarrhs of the larynx cause a thickening of the mucous membrane of the vocal cords, and an unmetallic, harsh voice is the natural consequence.

3. After prolonged singing, exerting discourse, or

after the inhalation of warm air, the larynx should never be exposed internally or externally to cold air; an inflammation of the mucous membrane, however slight, is generally the result.

It is easy to guard against either of these kinds of exposure; but this is generally not done, through want of precaution and through a false shame. It has been shown that most persons fail, not so much on account of the weakness of their organs, as because they have the insane belief that they are able to stand everything; that they must accustom the larynx to exposure, to cold air and the wind, after severe exertion and the inhalation of warm air.

Those, who are so careless, will have to stand the consequences; but we advise those who are more careful, and we lay it down as a positive rule for them, to protect the neck in such cases, externally, with some covering, and to prevent the entry of cold air into the larynx, by keeping the mouth closed and breathing through the nose, or by keeping a silk handkerchief before the mouth.

There is still something to be said in regard to male dramatic actors, which is of great importance in respect to health. In consequence of the coiffures and wigs of every kind, with which they have

to burden the head, sometimes for hours at a time, they are apt to become extremely heated. Now, in winter, when such a headgear is removed, and the actor goes forth into the open air, with nothing on the head but a modern hat (the most insufficient portion of our attire), it is impossible to avoid catching cold. A very good protection against this consists in an embroidered hood of fine wool or silk, covering the head and neck and leaving only the face exposed. Over this, he can put on his useless hat. This covering should not be put off until he reaches his room, the temperature of which should be uniform with that of the hall which he has quitted.

4. Our food also has great influence on our organs of speaking and singing. All very sharp and exciting condiments and drinks should be avoided (as pepper, mustard, spirits, acids, etc.). But, above all, it is necessary after any severe exertion of the larynx, to abstain from very cold drinks. The chewing of tobacco is also very pernicious.

5. Extreme care should be taken to avoid any too severe or too prolonged exertion of the larynx, in shouting, as well as in speaking or singing, generally.

It will, perhaps, be objected that, in this way, it would be impossible to attempt anything with one's voice, or to undertake a long rôle. This is not the case, however. A long part, even if it be of twenty pages, does not produce as much exertion as all the accumulated talk

and gossip that go on among the actors within the dressing-rooms and behind the scenes. We have known actors to have become more fatigued by loud and excited talk before the beginning of the performance than their entire rôle would have caused them. Such persons are sure to get their vocal cords and muscles into poor condition.

We have often heard artists exclaim, in the course of a performance: "I am altogether out of trim to-day; my whole part is going to be spoiled; and I thought I was in such excellent condition." They seemed to be unaware that they had themselves caused the trouble.

6. The neck should be strengthened with cold ablutions (begun in the warm season), and must not be too closely covered.

It is strange how people treat such fine and delicate organs as the vocal apparatus. While a watch (which, in case it is broken, can readily be repaired) is handled with the utmost care, and while everything is avoided that may in anyway possibly injure it, they imagine that their vocal organs can stand almost anything, organs which, when once injured, can never be restored, or, at best, but partially. They indulge, indiscriminately, in almost everything that can act injuriously upon them. They stay up half the night, and sometimes all night, smoking, or shut up in a room where others are smoking, and the next morning they complain of hoarseness, roughness of the throat, in other words, of irritation of the larynx. Instead of feeling guilty, however, about these bad consequences, they wrongly assign for them some insignificant cause, and they point to the performances of artists, who have habitually exposed their organs to these deleterious influences, as an evidence that such habits may be indulged in with impunity. It is true we have seen dramatic celebrities who have abused their finely endowed organs, and have abused them long (in proportion to the extent of their resources); still their achievements, as a whole, have always clearly manifested that their organs had not been spared, that they would have been able to achieve much more, have stood much higher in their vocation, if they had acted otherwise. We have seen most of them compelled to retire prematurely from the field of their activity, because their powers were ruined, or even hurried to an early grave. If there have been now and then artists who could afford to trifle with their vocal organs, this must be no argument that should justify us in attempting the same. If a man happens to make a crazy leap from a tower without breaking his limbs, does that show that we could do it with like impunity, nay, that we ought to attempt it? Let every one answer this question for himself.

PART THIRD.

CORRECT PRONUNCIATION OF LETTERS
AND CORRECTION OF DEFECTS.



CHAPTER I.

THE VOWELS AND THE CONSONANTS.

GENERAL OBSERVATIONS.

THE signs, which we employ to designate the single sounds of speech, are called letters. The letters collectively constitute the alphabet, the arrangement of which is different in different languages.

The letters are divided into vowels and consonants.

The *pure* vowels are:

E (as in *he*), *A* (as in *hay*), *A'* (as in *ah*),

O (as in *or*), *O'* (as in *oh*), *O''* (as in *cool*).

The consonants are divided into *sounding* and *voiceless* consonants.

The *sounding* consonants are *L, M, N, R*, the nasal *N* (*ng, nk* in *sing, sink*), *V, Z* (in *zone*), *Z* (in *azure*), *Y* (in *ye*), *W* (in *woe*), *Th* (in *then*), *B, D, G* (in *give*).

The *voiceless* consonants are *K* and its equivalents *C* (hard) and *Q*; *F, P, T, S* (in *sit*) and its equivalent *C* (soft, in *cider*); *Th* (in *thin*), *Sh* and *H*.

Ch, F and *X* are compound consonants.

CHAPTER II.

THE VOWELS.

SECTION 1

PURE VOWELS.

THE vowels are the fundamental sounds of all speech, and are uttered almost instinctively, for they are produced by the simple flow of the air from the lungs (which air has been formed into sound in the larynx), and the lengthening, shortening and narrowing of the resonator (*i. e.*, the pharynx, and the oral and nasal cavities).

According to Dr. Ernst Brücke, of Vienna, the three vowel sounds of *E* (as in *he*), *A'* (as in *ah*), and *O'* (as in *cool*), are the fundamental sounds on which the system of vowels rests; the other vowels being only intermediate sounds resulting from these three.

Of these three vowels *A'* is produced without any change in the resonator; *O'* by lengthening it and narrowing its exterior end; and *E* by shortening and narrowing it.

Or, with respect to the length of the resonator, we may say it is greatest with *O''*, and least with *E*, and intermediate with *A'*.

These three fundamental vowels are, accordingly, to be formed in the following ways:

Let us begin with *A'*.

Separate the jaws so far as to admit the thumb between the teeth; keep the lips perfectly still, without pressing them against the teeth or thrusting them out, but in such a way as to leave the extremities of the front teeth slightly visible; then perform a sounding expiration.

The tongue should lie perfectly flat and inactive, at the bottom of the oral cavity; or, better still, it may be made to assume a longitudinally concave position. *A'* is the only vowel in the production of which the hyoid-bone preserves the same position as when the organs are inactive; the larynx; however, is carried upward, somewhat, so that the sounding air-column, issuing from it, shall strike more forcibly against the roots of the upper incisors than against any other part (Fig. XXIII).

The transition from *A'* to *E* is effected by the elevation of the larynx and hyoid-bone, without their relative positions being altered; from *A'* to *O''* by the larynx being drawn downward as far as pos-

sible away from the hyoid-bone, which is carried forward somewhat.

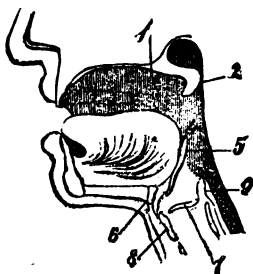


FIG. XXIII.

The description of the single parts of Fig. XXIII, which are the same in all the figures from XXIII to XXXI, is as follows: 1 is the boundary between the hard and the soft-palate; 2 is the uvula touching the posterior wall of the pharynx during the production of pure vowels and consonants, hanging down only in production of *nasal* sounds; 3 is the naso-pharynx, 4 the oro-pharynx, 5 the epiglottis, 6 the hyoid-(lingual) bone, 7 the right *true* vocal cord (the line above being the *false* vocal cord), 8 the thyroid (shield) cartilage, 9 the right arytenoid (pyramid) cartilage.

The production of *E* (as in *he*) requires the greatest narrowing of the oral passage, and the greatest shortening of the resonator. The *first* is effected in this way: the middle portion of the tongue is brought on both sides in contact with the palate, while its tip is made to press against the lower incisors (without, however, projecting beyond them), and its body being placed so as to present a longitudinal cavity through which the air passes. The *second* is effected by carrying the larynx upward as far as possible, while the resonator at the opposite end

is shortened by drawing the corners of the mouth back in the direction of the ears (Fig. XXIV).



FIG. XXIV.

It may be as well to remark in this place, that the positions which the mouth and other organs have to assume in the production of the vowels, should never in any way be strained, nor the muscles held in the least degree in an unnatural state of tension; the position of the lips especially, despite their flexibility, must never *be such as to become unseemly*, so as, for example, to give to the face the expression of a grin (which is apt to be the case in the production of *E*).

In the production of *O'* (as in *cool*), the larynx occupies the most depressed position. The resonator is consequently the longest, and is narrowed at its exterior end. The lips are thrust forward in such a way as to leave only a small, nearly circular opening between them. The tip of the tongue, which with *E* was pressed against the lower incisors, is drawn back a little from the teeth and held on a level with the edges of the lower incisors, while the back of the tongue is slightly arched (Fig. XXV).

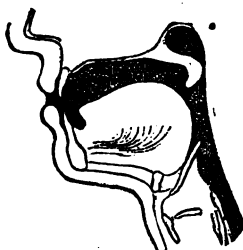


FIG. XXV.

The essential conditions of *A'*, *E* and *O'* may thus be briefly stated together:

A'.

Mouth most widely opened; oral passage in no way narrowed either in the middle or at the end; tongue kept still, and larynx carried upward a little, so that the sounding air-column issuing from it shall strike with most force against the roots of the upper incisors.

E.

Mouth widest; tongue very much arched, with its tip pressing against the inner surface of the lower incisors; larynx carried farthest upward.

O'.

Lowest position of the larynx; back of the tongue slightly arched; lips thrust forward so as to form a narrow, nearly circular opening.

As has already been said, *A'*, *E* and *O'* are the fundamental vowel sounds; and the other vowels are merely intermediate sounds. The changes which take place in the resonator in passing from *A'* to *E* and producing the intermediate vowel sounds, *A* (as in *an*) and *A* (as in *mate*) are as follows:

The resonator is gradually shortened and, likewise, narrowed; that is to say, the lower jaw is brought closer and closer to the upper, the corners of the mouth are drawn away more and more, and the tongue presses more and more toward the palate, until at *E*—where its tip presses against the lower incisors—it becomes most arched.

In passing from *A'* to *O'*, and producing the intermediate vowel sounds *O* (as in *or*) and *O'*, the resonator is gradually lengthened, and its exterior end, the mouth, narrowed.

In passing from *A'* to *O'*, the only change that takes place is that the lips are pushed out a little and made to form a rounded opening, while the larynx is carried downward somewhat.

To verify the foregoing assertion, that it is mainly the position of the lips that determines the sound of *O'*, let the pupil pronounce, in the way given above, the vowel *A'*; let the jaws, tongue and larynx retain their position, and set the lips only for the production

of *O'*; now try to pronounce *A'* once more; it will be impossible. The sound of *A'*, although the tongue and larynx have retained their position, has been changed into *O'*, by the rounding and thrusting forward of the lips; all that is necessary, besides, to the perfect formation of *O'*, is a slight depression of the larynx. Now pronounce *O'* first, and then set the lips for the formation of *A'*; it will be no longer possible to produce a clear *O'*, though there still will be no clear sound of *A'* in consequence of the larynx being slightly too much depressed, yet the poor *O'* will have disappeared.

In order to fully appreciate the nature of these changes, let the pupil pronounce, alternately, *O'* and *A'* (speaking or singing) from six to ten times in succession, commencing the vowel with "indirect attack," *O'A'oaaoaooa*, and he will soon perceive that the position of the lips only is changed, while the larynx scarcely moves. It is, indeed, possible to produce an *O'* without pushing out the lips; that is to say, without lengthening the open end of the resonator, but this can only be done by a further depression of the larynx; *i. e.*, by lengthening the resonator at the opposite end, and even then we shall not produce the pure sound of *O'*.

SECTION 2.

THE NASAL VOWELS.

In the production of the pure vowel sounds, the soft-palate is held against the posterior wall of the throat, so as to divide the throat into halves, the upper being in connection with the nasal cavity, and the lower with the oral cavity and the larynx. When this takes place, the air cannot escape through the nose. The old theory, that in the production of the pure vowels, the air escapes both through the mouth and nose, has been very ably controverted by Brücke. In the formation of the nasal vowels, the soft-palate hangs loosely, and the air emitted from the lungs escapes through the nose, as well as through the mouth.

In the French language the nasal vowel sounds are extremely frequent (*sang, singulier, ombre, enfin, enlever*, etc.).

In the English language there are no nasal vowel sounds; but when a vowel is followed by the consonants *ng* or *nk*, forming a part of the same syllable (as in *sing, tongue, bank*), then the vowel becomes, to a certain extent, a nasal or semi-nasal vowel, which differs from the French nasal sounds in that in its production the air does not escape both through the

nose and mouth (as in *sang*, etc.), but only through the nose, the oral cavity after the formation of the vowel being closed by the tongue.

Kempelen makes the following observations in regard to the pronunciation of *ng* : " In the French nasal sounds (*sang*, *singulier*, etc.) the nasal and oral cavities are both open, so that the sounding air-column, which, with all the other letters, passes through only one of the two passages, divides into two streams ; accordingly, the part passing through the nose must necessarily be weaker than in the case of every other nasal sound, in which the entire sounding column passes through the nose. But the reason why the French nasal tone appears to such a degree to sound through the nose, much more so than is the case with all other nasal tones, will soon become very evident if we regard such tone from a different stand-point, according to which it is nothing more than a vowel sound in which the nose is also open. If I wish to pronounce the French *en*, I produce an *A'* (in *ah*) with the nose left open ; this gives the perfect *en*. And so it is with all other vowels, as with *on* in *bonté*, *ain* in *ainsi*, etc. Now with all (pure) vowels the nose must remain closed. If it is not, the vowel becomes at once impure, and the ear which hears the nasal sound where it is out

of place, becomes so offended that one is induced to think that he hears nothing but the nasal sound, and that produced with the greatest exertion."

SECTION 8.

THE DIPHTHONGS.

If we begin uttering a simple vowel and then change the position of the mouth to that of another vowel, keeping up the sound while this movement takes place, and no longer, there results a new sound which we term a diphthong (as *ou*, *oi*, etc.).

In order to acquire the ability to produce the vowels pure, and strictly in accordance with physiological laws, particular care should be taken with *A'* (*ah*), the fundamental vowel *par excellence*. If we form this vowel incorrectly, it will be very difficult to form the others correctly; that is, the slightest misplacement of the vocal organs in the production of *A'* (as when the larynx is too much elevated or depressed, the tongue raised, etc.) will be repeated in the formation of the other vowels. When the pupil can produce a perfect *A'*, he then has the ability to correctly form all the other vowels.

CHAPTER III.

THE CONSONANTS.

THE characteristic feature of the vowels is that their sound can be continued as long as the voice lasts, the sounding air-column being variously modified, but never interrupted in the resonator. With the consonants just the reverse is the case. They are formed by impeding or interrupting the stream of air, or by narrowing the oral passage.

The consonants are divided, according to the positions of the vocal organs that are mainly instrumental in their formation, into;—

1. *Labial Sounds.*
2. *Dental Sounds.*
3. *Lingual Sounds.*
4. *Nasal Sounds.*
5. *Palatal Sounds.*

SECTION 1.

LABIAL SOUNDS.

F (*ph*), *v*, *w*, *p*, *b*, *m*.*F*

is produced by bringing the upper incisors against the lower lip, raising the upper lip somewhat; and, while this position is maintained, causing the air to pass out, but not as a sounding expiration.

The teeth should by no means be pressed against the lower lip, nor should they be placed too far forward or back, and the lower lip should not be stretched or pushed out too far. In the formation of this consonant, the upper lip is passive.

V

is produced by placing the mouth in the same position as for *f*, but causing the effluent air to sound, instead of blowing it out, as in *f*.

W (as in *woe*)

is formed by rounding the lips, as in articulating *oo* (in *ooze*), but slightly compressing them and holding them closer to the teeth; a brief vocal murmur is formed by the breath.

P

is formed by closing the lips tightly, separating the nasal from the oral cavity, by means of the soft-palate, and emitting the air compressed within the oral cavity, by suddenly opening the lips.

B.

The only difference between *b* and *p* is that with *b* a vocal sound is already heard when the mouth opens, while with *p* the sound begins only after the mouth has been opened. We may, in fact, say that with *b* the lips are opened by the voice, and with *p* simply by the air. With *p* the lips must be closed tightly, but not so with *b*.

M

is formed by placing the mouth in the position required for *b*, and performing a sounding expiration through the nose.

SECTION 2.

DENTAL SOUNDS.

T, d, th (in *thin*), *th* (in *thine*), *z* (in *azure*), *sh* (in *push*), *s* and *c* (in *sin, cider*), *z* (in *zone*).

T

is formed by placing the lateral edges of the tongue against the upper molars and pressing its tip against

the roots of the upper incisors, and, having in this way closed the oral passage, by forcibly expelling the air, as with *p* (Fig. XXVI).

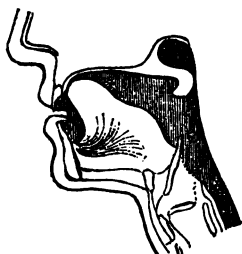


FIG XXVI.

D

differs from *t* in the same way that *b* does from *p*; that is to say, *d* is formed with the sounding breath, and *t* with a voiceless breath.

Z (in *zone*)

is formed by placing the mouth in the position required for *t* (but with this difference, that the tip of the tongue is not pressed against the roots of the upper teeth), and then performing a sounding expiration in which the air is made to pass out very gently between the upper teeth and the tongue, which is kept in a horizontal position. While in the formation of *t* the tongue is kept slightly convex, it must be kept nearly concave with *z*, that is to say, the

tongue, especially the anterior half, should form a sort of gutter, through which the stream of air gently passes.

Th.

When, instead of the tongue being placed in the position, its tip is held so low as to touch the edges of the upper incisors or to protrude between the teeth, there results a sound which the English call *th*, but which with other nations is called a lisp (Fig. XXVII).

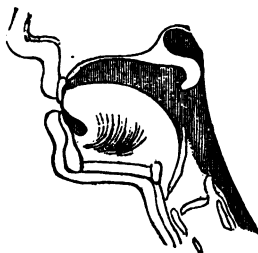


FIG. XXVII.

The distinction between *th* in *thin* and *th* in *thine* is, that with the first we simply expel the air, while the second is formed with a sounding expiration. The position of the tongue is the same for both.

Exercise to Remove Lispings.

Those who are troubled with the defect of *lispings* should draw in the tongue, and the tip, which is bent back, should be somewhat raised. It is better, in exercising, to raise the tip of the tongue too much at the outset, rather than

too little; the stiffness thereby occasioned will disappear with the continuance of the exercises.

A good exercise is to take words beginning with *z* and utter them in the following manner: Take, for instance, the word *zone*; first pronounce the *z* with a sounding expiration; keep up this buzzing tone for a time, and then add on the *one*. Exercise in this way all the words beginning with *z*. Having become accustomed to pronouncing the *z* without thrusting forward and out the tongue, it will be easy to pronounce all the dental letters correctly.

Whoever forms the consonants according to the strictly physiological rules here laid down, will not find it necessary, in order to learn to pronounce this or that sound, to take pebbles into the mouth, as is said to have been done by Demosthenes, who, of course, knew nothing of the science of the physiology of the vocal sounds such as exists at the present day.

We must repeat what has been said in Part II, in speaking of the position of the tongue, *that the surest and quickest way of getting rid of any curable defect is to obtain a complete control of the muscle through whose false activity the defect has been occasioned.*

S and C.

The sharp sound of *s* and *c* (in *sin*, *cider*) is produced by keeping the tongue in the same position as with *z*, but not causing the escaping air to produce

a vocal sound. The tongue must be drawn in more than with *z*.

Z (as in *azure*)

is formed by a partially vocal sound modified by gently raising the whole forepart of the tongue toward the roof of the mouth, and allowing the breath to escape between it and the teeth (Fig. XXVIII).

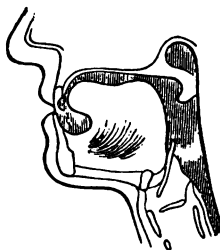


FIG. XXVIII.

Sh (as in *push*)

is formed in the same way, but by means of "aspiration," not "vocality," in the emission of the breath.

SECTION 8.

LINGUAL SOUNDS.

L

is produced by placing the mouth in the position required for *d*, but leaving an opening on both sides,

in the region of the molars, through which a sounding breath is emitted.

R

is produced by vibrating the tip of the tongue, which is held flat in the mouth, with the tip somewhat elevated.

There are two kinds of *r* — the lingual or pure *r*, and the uvular or impure *r* (see “Oral Cavity” in Part I); with the *first* the vibrating part is the tip of the tongue, the uvula remaining passive; with the *second*, it is the uvula, the tongue remaining passive.

A method for acquiring the ability to pronounce the pure *r* correctly, which was proposed by Talma, the celebrated actor and professor, at the *Ecole de Déclamation*, has proved very successful with my pupils through many years of experience, and I, therefore, reproduce it here. It is thus given by Fournier :

Exercise for Acquiring the Pure R.

Take for the exercise the word *travail*, giving it the French pronunciation; write *tdavail*, substituting a *d* for the *r*. Then let the pupil, who should try to completely banish the idea of the letter *r*, pronounce the *t* and *d* several times, unconnected, adding each time the concluding portion of the word, thus: *t-d-avail*. He will imperceptibly interpose a short *e* (as in *met*) between the *t* and *d*, and divide this new word into three syllables, *te-davail*. When this exercise has been repeated several times, the pupil should utter the same word closely connected, but slowly, *tedavail*. Let it be pronounced gradually faster and faster; by the rapid articulation the interposed *e* will be dropped, and there will remain *tdavail*. The pupil should then continue

to pronounce this word as rapidly as possible, closely connecting the sound of *t* with that of *d*, and laying special stress on the first letter. He will, already, by this new step in the exercise, unconsciously convey to the listener the impression of the letter *r*, which sound appears to result from the rapid combination of *t* and *d*. The *r* will be insensibly articulated, and the letter *d* will disappear, permitting the newly-formed sound to be more decided. By means of this exercise, the pronunciation of *r* will be acquired in the natural way.

What the American writers say on *r*, we read in "Orthophony," by James E. Murdoch and William Russell, edition of 1877:

"*R* (as in *rap*), differs from the *r* (as in *far*) in having a harder and clearer sound, executed by a forcible but brief vibration of the tip of the tongue against the first projecting ridge of the interior gum, immediately over the upper teeth; while the latter has a soft, murmuring sound, caused by a slight vibration of the whole forepart of the tongue, directed toward the middle part of the roof of the mouth.

"The common errors of careless usage substitute the soft for the hard *r*, and omit the soft *r* entirely; thus, *fah* for *far*. Another class of errors consists in *rolling*, or unduly prolonging, the sound of the hard *r*, and substituting the hard for the soft sound.

"The greater prolongation of sound, which takes place in the average of *singing* notes, or in impassioned recitation, renders a slight comparative roll of the hard *r* unavoidable, at the beginning of a word. But it is a gross error of taste to prolong this sound, in the style of foreign accent, as in French and Italian pronunciation, or to substitute the rough sound of the hard *r* for the delicate murmur of the soft *r*."

An English gentleman used to say: "Our *r* is something between *ah* and nothing."

SECTION 4.

NASAL SOUNDS.

N (Fig. XXIX)

is produced by taking the position required for *d*, and making a sounding expiration through the nose.

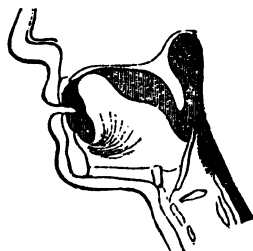


FIG XXIX.

Ng

is produced by a sounding expiration through the nose, with the oral cavity shut off from the pharynx, by raising the back part of the tongue.

SECTION 5.

PALATAL SOUNDS.

K and *g*, and their equivalent *c* hard (as in *cake*); *g* hard (as in *give*);
v (as in *ye*).

K.

The sound of *k* is produced by closing the oral passage by means of the middle or posterior portion

of the tongue and the middle or posterior portion of the palate, by forcing the air against this barrier, and then forcibly expelling it by suddenly withdrawing the obstruction.

Q

is formed like *k*. It occurs only in the combination *qu*, which is pronounced like *kw* (*queen*, *quarter*, etc.).

G (in *give*)

is produced by taking the position required for *k*, but making a *sounding* expiration; *g*, therefore, bears the same relation to *k* as *b* to *p*, or as *d* to *t*.

There are two *k*'s and two *g*'s, the oral passage being in the one case closed more anteriorly than in the other. The one is heard in *kept*, *kitchen*, and in

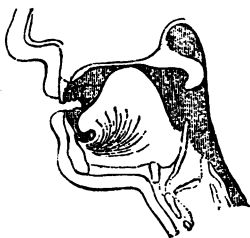


FIG. XXX.

get, *give* *gate*, etc. (Fig. XXX); the other in *cough*, *cool*, and *ghost*, *gall*, *garden*, etc. (Fig. XXXI).

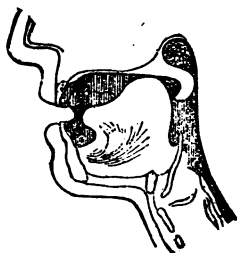


FIG. XXXI

Y (in *ye*)

is formed from *g* (in *give*) by not completely closing the oral cavity, the position of the tongue being such as to permit the air to escape through a small channel.

F

is produced by so contracting the glottis as to make the emission of the air *audible* (*spiritus asper*), (Fig. XXII, 3). It may rightly be said that this noise, *h*, originates *in the glottis*, and is not, as was until recently held, produced by the air emitted from the lungs striking against the walls of the throat, or of the oral cavity.

Ch (as in *church*), *Ʒ*.

Ch is a compound of *t* and *sh*.

Ʒ is a compound of *d* and *z* (in *azure*).

X

is equivalent to *ks* or *gs*; the first combination is heard in *axe*, and the second in *example*.

Having become acquainted with the correct formation of the letters, we have still to consider the question of the transition of the organs, from one position to another, in articulating different sounds. When a sentence contains a number of words, whose articulation requires great changes in the position of the organs, there will be a certain harshness, a want of smoothness, in the delivery. On the contrary, where the transitions are slight, the utterance is smooth and easy. A fine ear will avoid all harshness in the utterance of a sentence, but without its meaning being thereby, in the least, affected.

CHAPTER IV.

CORRECTION OF DEFECTS.

SECTION 1.

CONNECTING A FINAL CONSONANT WITH THE INITIAL
VOWEL OF THE FOLLOWING WORD.

THIS not only occasions great indistinctness in the delivery, for instance, instead of "I woke up early," "I wo-ku-pearly;" but often gives a different signification to the sentence, for instance, "Can you remember that rain?" "Can you remember tha-train;" "First-rate," "Fir-strait," etc.

SECTION 2.

IMPERFECT VOWEL ATTACK.

It is generally the habit in uttering the initial vowel of a word, not to separate the lips beforehand, which is absolutely necessary if correct utterance is desired. The consequence is the prefixing of all kinds of sounds in the nature of initial consonants, which disfigure the speech. We sometimes hear, for example, *nambition* for *ambition*, *nenemy* for *enemy*, etc.

It is always necessary, in beginning a sentence with

a vowel sound, to open the mouth slightly beforehand, and to remove the tongue from the palate, with which it lies in contact when the mouth is kept closed in a state of repose. We must likewise be careful to give the distinct pronunciation to a final consonant before an initial vowel.

SECTION 3.

ADDING WRONG CONSONANTS AND SWALLOWING SYLLABLES.

Words are frequently disfigured by inserting or adding consonantal sounds; for example, *lawr*, *idear*, *drawring*. A not unfrequent habit is the swallowing of parts of words; for instance, *particular* (particular), *gography* (geography), *lectric* (electric), *fah* for *far*, etc.

SECTION 4.

INTONING BETWEEN WORDS.

An unpleasant habit, which is unfortunately very frequent, must be noticed here. It is the peculiarity of introducing unnecessary sounds between the words, as : "Have you seen that . . a . . representation?" This is as when the notes struck on a musical instrument continue to sound beyond the proper time.

These sounds facilitate the passing over from one word to another, which generally accounts for the habit. Sometimes, however, this defective way of speaking is the result of inability to think fast. In any case, we should seek to get rid of it.

SECTION B.

WRONG USE OF THE LOWER JAW.

Imperfect speech, however, is not merely due to the defective pronunciation of the sounds, but is also, in a great measure, the consequence of keeping the lower jaw too far forward (the lower incisors projecting beyond the line of the upper) or of moving it to one side.

This is a grave defect, and no pains should be spared to avoid it.

The lower incisors must be kept in their natural position, a little back of the line of the upper. (Those cases in which nature has placed the lower jaw too far forward do not concern us here.) In impassioned and loud speaking, great skill is needed to resist the inclination to push out the jaw too far. It is easy to recognize the nature of this defect. Take a sentence and pronounce it with due regard to the position of the lower incisors, taking care in moving

them up and down to keep them always behind the line of the upper; the pronunciation will be most distinct, provided, of course, that the vocal organs are correctly applied. Then pronounce the same sentence with the lower jaw too far forward, if only in the least degree, and the vowels will become surprisingly indistinct. The inclination to thrust forward the lower jaw is greatest with *O'* and *O''*; and to add to this defect, the lips are thrust forward too far, so that in consequence of the empty space between them and the teeth, the consonants also become indistinct.

In pronouncing, for example, such a syllable as *vote*, one is generally inclined, after setting the lips for *v*, to thrust them out too violently and too far, in order to get them into the position for *o*. The transition, however, from the *v*-position to the *o*-position is not an easy one. The lips cannot be brought out from the *v*-position quick enough, and there is, in consequence, an unpleasant noise, which occasions indistinctness; apart from which the projecting lips produce the impression of a *fish-mouth*. Or else one pronounces the *v* with the lips already in the *o*-position, and indistinctness is likewise the result.

It will be well, therefore, to observe the following: the correct formation of the vowel *O'*, as well as of

O', requires, it is true, a thrusting forward of the lips, as the resonator is thereby lengthened; but we ought to possess the ability to produce this lengthening without depending too much on the lips. This will, however, be possible only if we lengthen the resonator at the other end, by carrying the larynx far downward, which should be done without pressing upon the organ. By doing this we shall be enabled to combine all the labial consonants with *O'* and *O''* with correctness and distinctness. In this way alone is it possible to carry on an easy, rapid and lively conversation, without anything of what is said being lost.

A person can produce the vowel sounds *O'* and *O''* without thrusting forward the lips at all, by carrying downward the larynx far enough, but this is in no way necessary; the lips may be thrust forward, but only slightly, so that no unnecessary sounds shall slip in.

SECTION 8.

EXERCISE FOR THE CORRECT USE OF THE LOWER JAW.

The following exercise will give one the ability to keep the lower jaw in the proper position:

Draw back the corners of the mouth as far as possible without giving the face the appearance of a grin; then take

a long sentence and repeat it (keeping the corners of the mouth well drawn back) at first very slowly and softly, and then in a more and more rapid, impassioned and vehement manner. Having done this for a sufficient time, repeat the same sentence in all these various ways without drawing back the corners of the mouth, and taking care not to thrust out the lower jaw and the lips. By drawing back the corners of the mouth the speaker will be compelled to keep the lower jaw in the right position, or else he must be forcibly thrusting it forward. Finally, speak the sentence with the lips in the right position.

SECTION 7.

HOW THE WRONG USE OF THE LOWER JAW MAY BE RECOGNIZED.

If anyone desires to know whether he has this defect or not, he may employ the following test:

Let him take a narrow, flat stick of ivory or other material, four or five inches long (as the handle of a tooth-brush), and press it in a vertical position against the middle of the chin, so that its upper extremity is kept tight against the inner surface of the upper incisors, and let him, while keeping the stick firmly in this position, sing various tones. If the defect is present, he will be surprised to see how much force will be required to keep the stick quite vertical, that is, to keep the chin, or, in other words, the lower jaw from pushing outward. This operation may serve as an exercise for acquiring the ability to use the lower jaw correctly.

PART FOUR.

RESPIRATION.



CHAPTER I.

INSTINCTIVE RESPIRATION.

SECTION 1.

VOLUNTARY AND INVOLUNTARY BREATHING.

TO comprehend a system or method of breathing correctly in singing and speaking, it is necessary to know how man really does breathe.

Breathing takes place *involuntarily* and to a certain extent *voluntarily*.

Involuntary respiration is divided into two parts: *inspiration* and *expiration*; *voluntary* respiration into three: *inspiration, holding the breath, and expiration*. This second mode (threefold respiration) is what really characterizes *artistic* respiration.

In inspiration the chest is expanded; in expiration the expanded parts return to their original state. The expansion of the chest, during inspiration, takes place in two ways: one by the movement of the ribs upward and outward, together with the sternum (breastbone) and clavicle (collar-bone), the other by the contraction of the ordinarily arched

diaphragm, — the fleshy partition between the cavities of the chest and abdomen. We have described the diaphragm, under the “Organs of Respiration,” and of its importance in phonetic expiration we shall shortly have more to say. We can, therefore, breathe at will either with the ribs or the diaphragm; and hence we have *chest-breathing* and *abdominal breathing*.

Neither of these movements entirely excludes the other; they are rather both present at the same time, but usually one predominates.

In *deep, abdominal* respiration, the entire trunk bends backward; the abdomen protrudes through the agency of the diaphragm, the lower ribs expand and are pushed *forward*, the upper ones *backward*.

In *chest-breathing* we distinguish *two* kinds: If the upper ribs are especially drawn up, we have the so-called *shoulder or collar-bone* breathing, in which the shoulders, and principally the shoulder-blades, are very perceptibly raised; the collar-bones and the ribs naturally accompany them directly upward; the walls of the abdomen at such times press the intestines together and backward; the abdomen, especially the *epigastrium*, recedes. The whole trunk becomes elongated; hence the lungs, and especially their tips, are lengthened and expanded.

If, however, the lower ribs are especially drawn outward, so-called *rib* or *side-breathing* results, by which the chest, above all, increases in breadth. The whole trunk bends more or less forward; the abdomen recedes so that its fore arch, especially the region of the stomach, is drawn flat and even inward.

SECTION 2.

THREE MAIN MODES OF TAKING BREATH.

We have, then, *three* main kinds of respiratory movements:—

1. *Abdominal or diaphragmatic breathing.*
2. *Shoulder or collar-bone breathing, and*
3. *Side or rib-breathing.*

In abdominal or diaphragmatic respiration there is complete expansion of the lungs. In the two other modes of respiration this expansion is incomplete or partial; since in the one (collar-bone breathing) the upper, in the other (rib-breathing) the middle region is affected.

Since the appearance of the first edition of this work, in which for the first time, in a popular scientific treatise, diaphragmatic breathing was taught and designated as the only true method of breathing, the author has heard a great deal of talk about the diaphragm. Wherever tone-formation was discussed the subject of diaphragmatic breathing has been brought up. The writer, however, has had very frequently to hear complaints from pupils, who had gone through a long course of instruction at the hands of singing teachers, that while their teachers had insisted upon their breathing with the diaphragm, the way to do this had not been taught them. Many of them have even

declared that when they did breathe in the way in which they had been instructed, the least quantity of air was introduced into the lungs. From this it is evident that both teachers and pupils have had a wrong conception of the nature of diaphragmatic or abdominal breathing, and have practiced it falsely, having mistaken for it the simple and feeble contraction of the diaphragm which takes place in sleep as well as in a state of perfect repose, and which almost of itself alone (but not altogether alone) keeps up the respiration at such times. They have made the mistake of supposing that this purely diaphragmatic breathing was meant. But this is altogether an error. Of the two kinds of respiratory movements termed *diaphragmatic* and *rib-breathing*, neither, it is firmly settled, excludes the other entirely; they are, on the contrary, always associated, but usually in such a way that one or the other predominates. During the activity of the diaphragm, in sleep or in perfect repose, the lower seven or eight ribs remain almost inactive; but in a state of wakefulness and bodily exertion there is the full abdominal respiration; that is to say, the full activity of the diaphragm combined with rib or side-breathing to a certain extent; this latter consisting in the raising upward and outward of the lower seven or eight ribs to one-half or three-fourths of the utmost possible limit. The raising of the lower seven or eight ribs is an essential condition of the full activity of the diaphragm, of which they form the frame, inasmuch as its fibres are attached to the ribs and can contract effectually only when these are forced upward and outward and held firm in that position. There can be no such thing, therefore, as perfect diaphragmatic or abdominal respiration unless this condition is present. It is in the correct diaphragmatic respiration, and not by the *exclusive* activity of the diaphragm, that the greatest quantity of air is admitted into the lungs. We may, indeed, cause the principal respiratory movements to take place each by itself alone, thus producing a forced action, but in this case an unsatisfactory result is obtained. As long as we allow nature to act unhindered, a forced action cannot take place. It is in the *combination* of the respiratory movements that the free action of nature appears, and according to the muscles mainly involved we designate each kind of respiratory movement.

Shoulder-breathing is found mostly in women; side and especially abdominal breathing among men.

Without entering upon the old dispute of physiologists, as to whether women naturally breathe clavicularly, or whether the disadvantageous manner of dressing is the cause, we here contend that women should make the same respiratory movements in the

art of song and speech as men. (See Chapter II, Section 7.)

While, then, inspiration takes place by means of the muscles of inspiration, and so becomes an *active* process, expiration takes place during ordinary respiration, less by means of the muscles than through the return of the previously expanded parts to their original state, resulting from their elasticity,—usually a purely *passive* process.

This is, however, the case only in so far as expiration promotes animal life; *i. e.*, as long as it is involuntary; as soon as it becomes voluntary, and is used to remove foreign substances that impede respiration, or is made the agency of voice and speech, then several groups of muscles are brought into activity, because the simple expiratory pressure is too weak to accomplish the desired end, and expiration, too, becomes an *active* process.

The activity of the muscles which now steps in, has two duties to perform: first, to support and strengthen expiration; secondly, to retard and check it.

The *first* is done by the abdominal muscles which draw down the ribs, compress the abdomen, and so, while pressing the intestines and the diaphragm upward, narrow the cavity of the chest from below also.

The *second* is accomplished mainly by the diaphragm, whose chief function is to regulate the voluntary retardation, to counteract the pressure of the intestines when forced upward by the abdominal muscles. (See Chapter II, Section 9.)

In inspiration the glottis *widens*, in expiration it *contracts*, in order to make the expirations *slower*. This is the case with all the air-passages, because they are elastic.

In strong, quick inspiration the larynx sinks slightly; in expiration it resumes its original position.

It is in our power to use either one of the groups of the respiratory muscles. If, however, we permanently prevent an expansion of the lower ribs by a too great narrowing of the waist, the natural consequence will be that these parts will finally lose entirely the ability to expand, and, therefore, the diaphragm will be unable to take any part in *phonetic expiration*.

After having learned how man breathes instinctively, we shall now show how it is necessary to breathe in singing and speaking.

CHAPTER II.

*ARTISTIC RESPIRATION (IN SONG AND SPEECH).**

WHAT the singer and speaker must chiefly be intent upon, is to spare the respiratory organs. This, however, can be effected only by regular, slow, inaudible and correct breathing. In a state of repose these conditions may be easily fulfilled; but with every considerable exertion we perceive that the respiratory organs work faster, that the blood flows quicker through the veins, and it appears impossible to breathe slower at such moments. In reality it would never be possible to wholly prevent the quickening of the respiration; still a great deal can and must be done to preserve the organs by a system, by a correct method, and by their constant exercise.

To make the lungs capable of unusual exertion, it is first necessary to exercise them carefully and slowly, with the necessary pauses, and thus to

* For the convenience of the student, this entire subject is divided into twenty-six distinct parts.

strengthen them. *Most people believe that it is sufficient to have lungs in order to be able to speak continuously and with a strong voice!*

SECTION 1.

STRENGTHENING THE LUNGS.

The exercises of the muscles of respiration have been described in treating of the muscles. The following marks explain the set of exercises we have prepared, for the enlargement of the lungs and for increasing their elasticity. These exercises consist simply in respiration, beginning with the inspiration of a small quantity of air, the quantity being gradually increased until it becomes as great as the lungs can possibly hold. Let a line be drawn obliquely upward from left to right (\nearrow) representing the *inspiration*; another line drawn obliquely downward from left to right (\searrow) representing the *expiration*. When two such lines incline against each other, so as to form an angle (\wedge), it indicates that expiration follows inspiration without a pause. When the lines do not come to a junction ($\nearrow \searrow$) the space between them indicates a pause. A figure inserted in the space ($\nearrow^3 \searrow$) indicates the retention of the breath for so many seconds; thus, in this in-

stance, there is an interval of three seconds during which not a particle of air must be permitted to pass from or enter the lungs. We have selected musical notation lines for these diagrams, so as to clearly represent the progression in the increasing respiration.

RESPIRATORY GYMNASTICS.

FIRST SERIES.

Exercises for Breathing without Interruption.

These exercises should not be performed as mere *muscle-movements*, but should *always* be accompanied by breathing. It is true that we can perform them *without* breathing by mere *contraction* and *relaxation* of the diaphragm or other muscles. This, however, is a forced action of the muscles, and would result in no benefit.

In the following exercises the duration of the respiration is to be increased, as indicated in the diagrams, *without pauses*. The inspiration should take place through the nose, and the expiration

through the mouth. The inspiration and expiration should be of equal length.

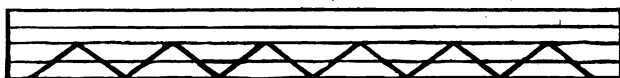
Exercise I.

Rhythmical movement of the diaphragm, gentle, as in sleep.



Exercise II.

Raising of the lowermost ribs; movement of diaphragm twice as great as in Exercise I.



Exercise III.

Raising of the lower seven or eight ribs, together with the lower portion of the sternum, to half of the utmost extent possible; movement of diaphragm three times as great as in Exercise I.



Exercise IV.

Complete activity of all the muscles used in inspiration, without the clavicles (shoulder-blades).



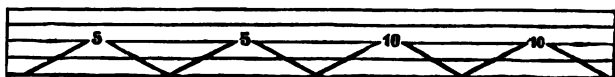
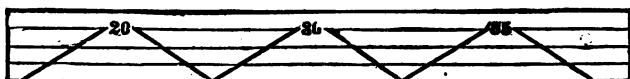
The pupil should spend most time on Exercise IV, and perform it in the following manner :

After the lungs are completely filled, retain the air in them two or three seconds, and then emit it slowly through a very thin blowing-tube. Repeat this exercise six times in succession three times a day, and do not proceed to the "Second Series" until after the elapse of two weeks, while the time for holding the breath grows gradually longer, thus: *five* seconds for four days, *ten* seconds for eight days, *twenty* seconds for sixteen days, *thirty-five* seconds for thirty days ; then practice on *thirty-five* seconds for six weeks, and not until after two or three months make any attempt to hold the breath for *forty-five to sixty* seconds, and this latter number only if it can be done with ease ; under no circumstances is force to be applied.

SECOND SERIES.

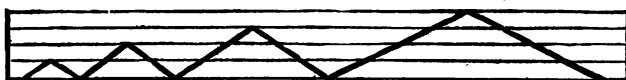
Exercises for Breathing with Interruption.

In the following exercises the duration of the respiration is to be increased, as indicated in the diagrams, *with pauses*.

Exercise V.*Exercise VI.**Exercise VII.*

THIRD SERIES.

Exercises for Breathing by Increasing the Length of each Successive Respiration, and by Alternating the Different Modes of Taking Breath.

Exercise VIII.

Perform *Exercise VIII* four times every day, six times in succession, but only after the requisite facility in the preceding exercises has been attained.

Exercise IX.

Perform *Exercises VI* and *VII* alternately with each of the three modes of respiration, *abdominal*, *side* and *shoulder-breathing*,—in order to develop the lungs uniformly.

With careful exercise it will, after a short time, be apparent that the lungs are capable of inhaling a greater quantity of air than before, and that one is enabled to retain the breath with ease, which is of incalculable utility.

I have seen people who were unable to retain the inspired air even for a second; who had such short breath that they considered themselves invalids, although they were in perfect health; who did not even know what position the organs of the mouth assume when the breath is retained. By means of careful, persevering, and not too fatiguing exercise, under proper direction, their breath (as they have expressed it) became longer, that is, they were enabled, after going through these gymnastics with their respiratory organs, to take in a much greater quantity of air into the lungs than they could before, and naturally to emit so much more.

For those who are unable to retain their breath, the following directions will be of service:

In order to be able to retain the breath, we must close the glottis; under ordinary conditions—that is, when there is a natural cause—this takes place spontaneously, as, for example, in the application of *abdominal pressure*.* The action of *abdominal pressure* is induced by the need of protecting the abdominal organs in any unusual exertion of the body, as in bending, lifting, etc., and is brought about by closing the glottis after the lungs have been filled with air and exercising a downward pressure with the diaphragm and abdominal muscles. Merely thinking of abdominal pressure gives one the ability to close the glottis at pleasure.

Another means of arriving at the consciousness of the muscular movements required for the closing of the glottis is the following:

Exercise X.

CLOSING THE GLOTTIS AT WILL.

Pronounce the vowel *A'* with “direct attack” (as has been taught in the beginning of Part II, ten, fifteen times in succession), but in such a way as to keep the glottis closed before every *A'* for a few seconds before pronouncing the vowel. By this means we can obtain a full con-

* The combined activity of the abdominal muscles and the diaphragm I call *abdominal pressure*.

sciousness of the muscles of the vocal cords, and acquire the ability to use them, that is, the power of closing the glottis at will.

The closing of the glottis does not suffice by itself, however, for the retention of the breath. One must also possess the ability to keep the ribs (raised outward by the external intercostals, and the contracted—drawn downward—diaphragm) fixed in their position; for, with the sinking of the ribs and the return movement of the diaphragm upward, the air is forcibly expelled from the lungs. In fact, it is necessary to be able, without the closing of the glottis, to retain the breath by merely keeping the ribs fixed in the position of inspiration and the diaphragm pressed downward.

More exercises than I have here given would be useless. They would lead the pupil into *mechanical movements of the muscles*, prevent all independence on his part, and finally make a mere machine of him. If the pupil has talent, then the exercises already given fully suffice for fundamental practice; if he has no aptitude, then a tenfold number would not avail him.

It may as well be remarked here, that certain gymnastics of the lungs, as well of the other organs, must be performed daily just so long as the artist desires to practice his art with success; for just as the dancer through long inactivity loses the elasticity of his limbs, so the singer or the speaker fares with his lungs.

SECTION 2.

BEGINNING OF SPEECH OR SONG.

The orator or singer must not begin a single sentence, not even the smallest, before having sufficiently filled his lungs. But it must not be understood that the lungs are to be so completely filled that not another atom of air could be contained in them, but only seven-eighths filled ; for keeping the lungs completely filled increases the difficulty of holding the breath ; and, therefore, also of singing and speaking.

SECTION 3.

STATE OF READINESS.

This condition, *lungs sufficiently well filled*, we call "the state of readiness."

The sensation of having the lungs filled must not be absent during singing or speaking, until a pause is reached.

SECTION 4.

CLOSURE OF THE GLOTTIS.

After an inspiration, the glottis should be closed for a moment, *i. e.*, the breath held back before one commences to speak or sing. But if we begin at

the same instant that the last atom of air has entered the lungs, too much air will naturally pour out at the first words, thus rendering them unmetallic and aspirate.

SECTION 5.

INSPIRATION AND EXPIRATION TO BE DONE AS SLOWLY AS POSSIBLE, AND UNIFORMLY.

This condition must be fulfilled whenever the construction of the sentence will permit. Slow breathing will be mainly brought about by right use of the diaphragm and the abdominal muscles, and keeping the ribs raised. (More on this subject in Sections 7 and 9.)

SECTION 6.

EVEN DURING ANY UNUSUAL ACTIVITY OF THE LUNGS, AS IN MOMENTS OF EXCITEMENT OR PASSION, IT IS QUITE NECESSARY TO BREATHE AS SLOWLY AS POSSIBLE.

It must not be considered impossible to attain this; the activity of the human organs depends undoubtedly, to a certain degree, upon our will, and though this is less the case with the lungs than with the other organs, it is still here also possible to arrive at really wonderful results by regular exercises, interrupted only by necessary rest.

SECTION 7.

ABDOMINAL OR DIAPHRAGMATIC BREATHING.—RIB OR SIDE-BREATHING.

We have shown in treating of the respiratory movements, that man can execute inspirations and expirations in *three different modes*, namely, by *shoulder, side or abdominal* respiration. *We must here urge that singers and orators should make habitual use only of the two latter modes of respiration (side, and especially abdominal respiration), and shoulder-respiration only when the temporary position of the body does not permit of the other two.*

The upper part of the thorax is, at the same time, also active in a certain way; when expanded for inspiration, it remains, more or less, in this condition during speaking and singing, so as not to impede inspiration and expiration, which would be the case if the *upper ribs* should constantly rise and fall.

If we permit the inspired air to escape from the lungs *only by means of the upper part of the thoracic wall* (shoulder-breathing); as is generally the case with women, the following phenomena will result:

1. *The tone will not be quite clear and metallic.*
2. *It will not be full.*
3. *It will not be firm or strong.*

4. *It will not be sufficiently prolonged.*
5. *The air will not pass from the lungs slowly and uniformly enough; but, on the contrary, in puffs; and*
6. *The plastic lines of the body will be disturbed by heaving of the bosom and shaking of the shoulders, not to mention the increased exertion required.*

The tone produced in such a way will, likewise, always be somewhat heavy, for the movement of the upper chest-muscles causes an involuntary participation of the muscles of the neck and larynx, and thereby disturbs these muscles, so that the tone not unfrequently becomes compressed and trembling and loses its clearness, and especially its fulness, because, the upper part of the air-passages being pressed together, the resonance of the sound is, in consequence, diminished. But by mainly using the *lower* part of the chest (side and especially abdominal respiration) all these phenomena are absent.

The following comparison may serve to prove that this method is the correct one:

Imagine a tube, whose walls can be compressed at will, filled with water. We can press the water in it upward in two ways: either we compress the *walls* of the tube, or we drive the water upward by means of a *piston*, which we apply to the lower end. In the former case (that is, by compression of the walls),

the stream becomes trembling, irregular, frequently interrupted; in the latter case (that is, pressure by means of a piston), the stream becomes strong, uniform, uninterrupted, as we can see in any engine-hose, which is correctly handled.

It is the same with man and his lungs. *The back, front and the sides of the chest are the walls of the tube; the diaphragm, lower ribs and abdominal muscles are the piston.*

Herein lies the proof of our theory of the diaphragmatic or abdominal respiration.

To dispel any doubt as to the possibility of mastering this mode of respiration, I take the following important example from the world of art:—

Wilhelmine Schröder-Devrient, the greatest dramatic singer, attained a wonderful degree of perfection in respiratory control (through unremitting practice, as she herself informed me). She sang the most difficult passages without the slightest movement of the upper portion of the chest, and it was she who gave the incitement to the preparation of this work, when, twenty-six years ago, I had the good fortune of attracting the notice of that remarkable lady, an artist who at the age of fifty-two stood unrivaled among dramatic singers.

It is true, all I learned from her was that I breathed in a wrong manner; and on my arguing that I breathed with the full action of the chest, I was answered: "It is with the abdomen that you must breathe, with the abdomen." This was all the explanation I received. And just as the student in Goethe's *Faust* exclaims:

"I feel as stupid from all you've said,
As if a mill-wheel whirled in my head!"

so it was with me from that moment.

After the lapse of three years (passed in sleepless nights, and in laboriously seeking for the solution of this riddle by means of study and experiment) appeared the first German edition of the present work.

Therefore, in order to avoid the occurrence of the above-mentioned phenomena, it is necessary to empty the lungs, not by causing the *sternum* and the *upper ribs* to sink to their normal position; but, while the sternum and the upper part of the chest generally are held raised upward and outward, by the combined action of the *diaphragm* and the *abdominal* muscles (abdominal respiration).

Although women make the respiratory movement more with the upper part of the chest, still they must, by exercises and a correct method, learn to use the lower ribs, the diaphragm and the abdominal muscles.

SECTION 8.

THE NECESSITY OF CONSCIOUSNESS OF THE DIAPHRAGM AND THE ABDOMINAL MUSCLES.

As I have been met countless times by the question "How am I to breathe by means of the diaphragm, when I have not the consciousness of the diaphragm, and do not in the least know by what means the diaphragm and the abdominal muscles are set into motion?" I do not deem it at all superfluous to set down a special paragraph on this subject.

*Exercise I. (For Consciousness of Diaphragm.)**

Lie down on the back, the head somewhat elevated; put the lungs into the "state of readiness" (see Section

* In my first American edition I left out this exercise because I was constantly told, "be brief, be brief to suit the American taste." Now, however, having been reproached by Americans, who know my German "*Gymnastics of the Voice*," for having left out so many matters, I add, among other things, this section, which occurs in the very first German edition of this work.

3); for the better recognition of the matter lay the hand on the abdomen, and now, *without allowing the upper portion of the chest to sink*, emit the air slowly from the lungs, and it will be perceived by the slowly falling hand that the abdomen shrinks; that is to say, the diaphragm relaxes from the contraction by which it pushed the abdomen outward; and thus, pressing on the lungs, drives the air in them up and out.

Inhale air again immediately and the hand will rise; that is to say, the abdomen will be pushed out, as before. This is the result of the action of the diaphragm; and by continued practice, interrupted by the necessary pauses, the consciousness of directing the diaphragm at will, will slowly be attained; for, although the diaphragm is an *involuntary* muscle, yet it can be, as we have learned in Part I, partially controlled by our will.

Now practice the exercise in an erect position; and, while singing a tone, it will soon be perceived that (without action of the abdominal muscles) the sounding expiration brings about but a faint result. Now let the abdominal muscles assist; contract them slowly, that is to say, press the abdomen inward while exhaling (and this can be done only by means of the abdominal muscles); exert a counter-pressure with the diaphragm which slowly subsides in proportion to the degree of pressure of the abdominal muscles, and it will be found that the effect is much stronger. (More in Section 9.)

Another means of attaining consciousness of the action of the diaphragm in a short time, is to closely observe the manner of expiration while *coughing*. *Coughing* consists of a deep inspiration followed by one or more successive powerful expiratory impulses. Every expiratory impulse is preceded by a movement (contraction) of two groups of muscles: one of the abdominal muscles, working from without in-

ward; the other, of the diaphragm, working from within outward. After the contraction of these muscle-groups (the glottis remaining tightly closed) has attained a certain degree of tension, the diaphragm suddenly ceases its contraction, and the compressed air in the lungs is driven noisily through the forcibly opened glottis by the still greater contraction of the abdominal muscles. This process is usually involuntary, but may be rendered completely voluntary. The noise (cough) is various. According to its cause it will be strong, moderately strong, or weak; and we find the contraction of the above muscles varying in the same degree.

Exercise II.

The pupil should practice the different degrees from weak to strong cough, whereby he will arrive at a consciousness of the diaphragm and its action, also of the abdominal muscles and their action, as will be described in the next section.

SECTION 9.

THE DIAPHRAGM AND ABDOMINAL MUSCLES USUALLY ACT COMBINED.

After inspiration, that is, when the diaphragm has, by its contraction, pressed the intestines downward, thereby pushing the abdomen forward and extending the abdominal muscles,—then begins a slow

contraction of the abdominal muscles for the purpose of expiration, whereby the intestines are pushed upward. The diaphragm, by remaining in a state of contraction, exerts, meanwhile, a counter-pressure.

Upon the gradually increased contraction of the abdominal muscles (that is, the increased pressure of the abdominal muscles upon the abdominal viscera upward), follows a gradual relaxation of the contraction of the diaphragm, whereby a uniform pressure is exerted upon the lungs, and in consequence of which the air passes through the glottis in the same uniform way. This can be continued until a new inspiration becomes necessary; in which case, then (either slowly or with lightning rapidity, according to necessity) the previous state of both groups of muscles is reproduced by the freshly inspired air, only to recommence their antagonistic activity.

The *stronger* the upward pressure of the abdominal muscles on the intestines and the slighter, *relatively*, the resistance offered by the diaphragm, the more *rapidly* the air will escape from the lungs. On the other hand, the feebler the pressure of the abdominal muscles and the slower the resistance of the diaphragm relaxes, the *less* rapidly will the air escape from the lungs.

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The *stronger* the antagonistic action of the abdominal muscles and the diaphragm, the greater is the pressure on the air in the lungs, and the *louder* and *more powerful* the tone.

If the antagonistic action of both these groups of muscles is in equilibrium, a cessation of expiration takes place. This is the case with the stutterer where the diaphragm sometimes falls into a state of spasmodic contraction which cannot be overcome by the abdominal muscles.

This function of the diaphragm, to retard the escape of air, is supported by the ability of the vocal cords to approach at will, whereby the glottis is so diminished in size, that an impediment is offered to the escape of air.

This antagonism of the two muscle-groups, the diaphragm against the abdominal muscles, admits of countless modifications, according to their respective degrees of contraction, and is of the utmost importance. Without this arrangement, without this ability to quicken or retard the expiration at will, it would not be in the power of man to modulate the voice, or to speak successive words in one breath.

The chest would collapse so rapidly, and the current of air escape so fast, that only *one* or *two*

sounds of equal strength could be uttered in quick succession. The *expression of feeling*, mainly due to the various modifications of the expiration, would be impossible.

This air-current, set in motion in the most diverse ways, weak or strong, interrupted or continuous, is the power by which are produced all sounds and noises that form the elements of voice in the larynx and pharynx, and in the nasal and oral cavities.

From the foregoing we perceive that the action of the abdominal muscles directly promotes the phonetic expiration; whilst that of the diaphragm operates indirectly, checking and regulating the upward pressure of the abdominal muscles.

That the diaphragm may act in the above-mentioned way, it is necessary that the lower ribs, which form its frame, should remain in the position they occupied at the *end* of the inspiration (raised outward) as long as possible; because a quick relaxation of these ribs hinders the contraction of the diaphragm, without which the downward pressure against the intestines is impossible, or at best very limited.

SECTION 10.

CORRECT APPLICATION OF THE DIAPHRAGM AND THE
ABDOMINAL MUSCLES.

It must be particularly noticed that we should work less with the muscles which pass vertically over the stomach (*musculi recti*), than with those which cover the *sides* (*musculi transversi* and external oblique and internal oblique).

A painful pressure upon the stomach is experienced when the *musculi recti* work much more than the *musculi transversi* and external and internal oblique; they should work less. We must have such a control over the diaphragm and the abdominal muscles that the air can be emitted at will in any quantity.

If we are asked to state more particularly *when* it is best to apply side-breathing and *when* abdominal breathing, we should say: every tone-formation for *lively* and *quick* speech in *light* conversation and in song, is best attained by side-breathing, with the abdominal muscles strongly drawn in and held firm, but every tone-formation for sustained and weighty speech, for *heroic* song, can succeed only when produced by full abdominal respiration.

SECTION 11.

PECULIAR PHENOMENA DURING THE APPLICATION OF
THE DIAPHRAGM AND ABDOMINAL MUSCLES.

Every one, who has learned this method of breathing, will, by exact observation of the rules and with a firm determination, be able to carry them out. Before long, however, it will strain him so much that he will begin to doubt whether he ever will be in a position to make this method second nature. But the scholar must not allow himself to be discouraged; for this strain results from three causes :

1. From being *unaccustomed* to make a more than ordinary use of these muscles.*

2. From their over-exertion, as the scholar, having become convinced of the efficacy of this method, tries to arrive as quickly as possible at the desired end.

3. From the occasional wrong application of the abdominal muscles; for the scholar, at first, will press upon the stomach more or less, since he uses the *musculi recti* too much and allows the lower ribs to sink, instead of keeping them firmly raised.

* We have already learned in treating of the muscles, that it is only by the force of habit that they can be brought to work with more than ordinary activity.

These three causes can be removed only by long continued, careful, correct practice, interrupted by the necessary pauses.

It must not be supposed that the mere *knowledge* of a method is sufficient for its application; for the application of a rule, practice, time and great perseverance are necessary.

SECTION 12.

INSPIRATION TO BE PERFORMED NOISELESSLY, AND VISIBLE ONLY TO SUCH A DEGREE AS IS ABSOLUTELY NECESSARY.

Loud breathing is not only unbecoming, but also destructive of the organs, especially the vocal cords. This can be explained by the following: We have already learned that in inspiration the glottis expands, while the larynx slightly sinks, and during expiration it contracts, while the larynx not only regains its former position, but rises still higher. This is so by nature, and, if we acted accordingly, many mistakes would be avoided. But there are many who in inspiration compress the glottis as much as it contracts in expiration, by falsely using the muscles of the larynx, thereby hindering the descent of the larynx; this causes the disagreeable

sound of the air brought into friction against the walls of the glottis (the vocal cords).

This constantly recurring, forcible crowding through of the air produces *dryness* of the mucous membrane, even inflammation, which greatly hinders the formation of sound and not unfrequently leads to the total ruin of the vocal cords.

It is necessary, therefore, to pay particular attention that no incorrect muscular activity be developed, that the glottis, instead of being compressed, be widely opened, and the larynx be permitted to sink naturally. This will result if the air be inhaled only by means of the muscles of inspiration, the glottis regarded merely as a passage, and the vocal cords not used for muscles of *inspiration*. In this respect it is with the glottis as with the nose, when we breathe through the latter.

Audible inspiration has also another cause. Most singers and speakers possess the fault of discharging the air from the lungs *entirely* before inhaling fresh air. When the latter is done, it is impossible (except, perhaps, in the case of the most perfect orators and singers) to avoid making the inspiration audible and disturbing.

To make inspiration inaudible, it is necessary that the aperture, through which the air is inhaled, be as

large as possible, that the larynx, and with it the root of the tongue, be drawn downward as far as possible, and the soft-palate raised.

Through long practice this process can be executed with astonishing rapidity, as is absolutely necessary in quick singing and speaking. The ability to regulate the diaphragm at will, is also necessary, because just as soon as the larynx sinks, the diaphragm contracts, and the abdomen is made to protrude. If we observe these rules, it is almost impossible to inspire audibly.

The exercise, which the pupil will have to make in order to understand the foregoing and to be able to practice it by himself, will be as follows:

Exercise for Inaudible Inspiration.

Fill the lungs with air, then strike any particular tone, and prolong it, singing until all the air in the lungs has been exhausted. Now take a fresh, quick inspiration inaudibly, and go on at once with the same tone, and repeat this several times, until a consciousness of the muscles involved in the operation is arrived at. The position assumed by the organs will soon become familiar. It will be perceived that the soft-palate has been quickly drawn upward, and that the root of the tongue and the larynx have been drawn downward, and that the diaphragm has contracted. These movements all take place spontaneously; the pupil has only to become conscious of them and to perfect them.

Inaudible inspiration is a thing so important that too great pains cannot be taken with its practice;

and, with sufficient industry, what the pupil has deemed unattainable, will finally become second nature.

Through the inability to inspire inaudibly, the finest artistic achievements have fallen short of the attainable effect, and the greatest artists have lacked the highest degree of perfection. Two of our most famous artistic celebrities were afflicted with the defect of audible inspiration, which they preserved to the last. And strange to say, even in these cases the world has held fate responsible for the defect. People say, "What an artist would this man be if that defect were only absent!" which is like saying, "If this man hadn't a hump!" We cannot get rid of a hump, but we can of audible breathing. In such cases, therefore, we ought not to bestow pity, but to express condemnation. It is the duty of the actor and the orator to learn how to use the vocal organs, and no one has a right to plead natural defects; for, if they really exist, then such a person has no business to appear before the public.

The failure to comply with what the foregoing pages have taught, produces results more or less unpleasant to the hearer; the non-fulfilment of what is urged in the present section acts like a shaft which rebounds back to the breast of the archer; for, besides the torment occasioned to the listener, the ruin of the vocal cords of the artist is the inevitable result, and cases in which this does not occur must be looked upon as rare exceptions.

In the heading of this section we have said that inspiration should be noticeable only as far as is absolutely necessary. This necessity presents itself to the concert singer less frequently than to the dramatic singer or speaker. The concert singer must mainly strive for the production only of the most

perfect tone-formation (which, as we have seen, is attained chiefly by diaphragmatic and rib or side-breathing); whereas the dramatic actor must bring before the spectator's eyes, people in the most different states of emotion.

The outburst of emotion, however, whether powerful or weak, requires in nature a swelling of the breast (the seat of emotion), which becomes outwardly visible through the lungs filling themselves with air. This swelling of the breast should also be visible in dramatic acting; but let the scholar be careful not to attempt to accomplish this by raising the shoulders. This would be a movement which we have already expressly condemned. There should be an outward and forward movement of the breast, and the shoulders should be drawn slightly back, but not upward. The ordinary conversational tone in speech and song is produced by simple diaphragmatic breathing (without visible motion of the breast); but every *inward* excitement, even when only very slight, is manifested at once by the activity of the breast, which becomes more marked as the excitement is greater.

SECTION 18.

CASES IN WHICH THE BREATHING IS AUDIBLE.

There are cases in which audible breathing is not only permissible, but becomes a necessity. If, for instance, an oppressed chest seeks relief by a deep sigh, this is done with a loud and slow evacuation of the lungs. A person, after much walking or running, after extraordinary muscular exertion, will breathe *audibly*. A sudden fright checks breathing; the renewed escape of air will be *audible*. A painful, loud, prolonged *Oh! Ah! Yea! Nay!* will immediately after its formation change into perfect aspiration, and so close. We may also remark that the dramatic performer and orator requires *much more air* than he would believe for such exclamations, if he desires to prevent their being weak and without effect.

This fault is noticeable in all those who try to finish these exclamations with the small quantity of air which may have been left in the lungs, and who do not know that for such short exclamations, as well as for all others, the lungs must always previously be put into a "state of readiness."

Let us now consider several variations of breath-

ing, in which audible inspiration and expiration are necessary.

They are the following:

1. *Yawning.*
2. *Sighing.*
3. *Panting.*
4. *Sniffing.*
5. *Hawking.*
6. *Aspirating.*
7. *Snoring.*
8. *Sobbing.*
9. *Coughing.*
10. *Sneezing.*
11. *Loud laughter.*
12. *Weeping.*

Through external causes, these variations appear of their own accord; in art, however, where all outward causes are absent, and imagination must supply their place, such changes are very difficult of production. Hence the unnatural laughter and weeping of beginners on the stage, and even of actors who have been on the stage for many years. *It is, therefore, absolutely necessary to learn the physiological process required in these modifications of breathing.*

1. *Yawning* consists in a deep and long inspiration, followed sometimes by a short, often by a long, loud expiration. The mouth, as well as the glottis, must be opened widely.

2. *Sighing* is a slow, deep, and often intermissive inspiration, taking place usually through the mouth, frequently, also, through the nose, followed by a long, slow, at times trembling, and audible expiration.

3. *Panting* is a short, violent inspiration and expiration.

4. *Sniffing* consists in short and rapidly succeeding inspirations through the nose, while the mouth is kept closed by the tightly compressed lips.

5. *Hawking* results when we drive air quickly and powerfully through the glottis, partly with open, partly with closed mouth. It is produced by slow expiration; oftener, however, by jerks.

6. *Aspirating* is a hollow, monotonous and gentle expiration through the mouth, either slow or coming in short puffs.

7. *Snoring* results from a vibration of the soft-palate in inspiration and expiration through the mouth. It can also be produced by breathing through the nose, the mouth remaining closed, but not as easily, and certainly not as loud, as the other

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way. It is less a modification of breathing than an attendant noise.

8. *Sobbing* consists in a cramped contraction of the diaphragm which shakes the whole body and allows itself to be heard at varying intervals through one or more quickly following noises. The noise itself is produced in the glottis by inspiration, which takes place quickly.


9. *Coughing* is the result of one deep inspiration followed by one or more impulsive expirations in succession, as has been fully stated in Section 8. This process is usually involuntary; it can, however, be brought about quite voluntarily.

10. *Sneezing* consists in a quick, deep inspiration, followed, usually, by a very powerful expiration sounding like the combination *ts*. This expiration represents the actual sneeze. Directly before this expiration the nasal cavities are closed by the contact of the soft-palate with the posterior wall of the throat, and they are opened again with the expiration. The muscles of the face are drawn together in the region of the nose and eyes more or less according to circumstances, and resume their original position with the expiration.

11. *Loud laughter* and *weeping* are the most difficult to produce without external causes, and it

requires long practice to attain a certain degree of perfection. Most actors laugh and cry unnaturally on the stage; that is to say their laugh does not originate as it does in nature. Laughing consists in sounding expirations, which, broken off short, succeed one another quickly or in slower tempo; it always, however, originates in a shaking of the diaphragm, which must be more marked as the laugh is more violent. We justly say, "My sides shook with laughter." The sides can be made to shake, however, only by means of the diaphragm. Therefore, we call an unnatural laugh, which is not brought about by shaking the diaphragm, a *laryngeal laugh*; since it is produced principally by a continued monotonous opening and closing of the glottis.

In laughing, expiration goes on with quickly succeeding narrowing and widening of the glottis; at every narrowing there ensues a jerky noise which derives that quality from the action of the diaphragm. If we desire suddenly to stop violent laughter, we have only to close the glottis, *i. e.*, to hold back the breath; but if the desire to laugh is too violent, and the closed glottis can no longer restrain expiration, there invariably results a sudden expulsion of the air which will drive the lips apart



and thus cause a loud noise. Commonly speaking, we call this "bursting out."

12. *Weeping* consists in inspiration and expiration; the first takes place quickly and deeply, the second slowly and in jerks with narrowed glottis. The expiration is the real weeping, and is frequently interrupted by fresh inspirations. Yet the inspiration can be slow and deep and the expiration quick, according to circumstances.

SECTION 14.

THE AIR NOT TO BE ASPIRATED DURING PHONATION.

In the formation of a sound (in the beginning as well as in its duration) no *wild air*—that is, air not brought into permanent vibration,—should be audible. Herein many singers, and actors especially, fail. The remedy for it will be found in the following exercises:

Exercises for the Singer.

The pupil, after bringing the lungs to the "state of readiness," should produce a tone with the vowel *A* firm and decided, with the full closure of the glottis ("direct attack," see beginning of Part II); but *piano*, and without any pressure upon the vocal cords. The tone, at first short, should be frequently repeated and somewhat prolonged each time, special care being taken that it should not begin with an *h*, and that there should be no aspiration during its continuance.

Having gone through this exercise for a time, he should now attempt to sing the scale within an octave, but no longer, as before, giving each tone separately, but, on the contrary, seeking to combine the tones ("indirect attack"), and still without aspirating. Not being permitted to exhale more air than is necessary, he will be under the necessity of keeping the vocal cords in the proper tension, and, in a general way, of increasing the activity of the muscles, by which an aspirated tone will be less possible. These exercises should all be performed *piano*, and only when the pupil has acquired a pretty full control of the vocal cords, should there be any attempt to pass over to *crescendo*.

Exercises for the Speaker.

Pronounce a short sentence (a line) in one tone; begin with the lungs quite full, and after each syllable take as much breath (quick and inaudible) as was required for the preceding syllable, so that the lungs shall always be in a "state of readiness." The replenishing of the lungs, in this quiet and slow manner, after each syllable, is intended to bring abdominal breathing fully to our consciousness, and to make the necessary muscular movements our second nature. Each syllable being pronounced with full lungs and with careful avoidance of aspiration, the tone will gradually become sonorous, and in this way the pupil will most readily accustom his ear to recognize metallic quality and clearness in tones. When the pupil has for a time pronounced the sentence in this manner, he should start afresh with a slight change, reproducing now half the sentence without taking breath, but pronouncing the syllables as he did before, when he took breath after each, so that the syllables shall all be uttered singly and in the same tone. When this has been done for a time, he should proceed a step farther, uttering the whole sentence in one breath, but still continuing to syllabicate; and, finally, he should utter the whole sentence in one breath, not syllabically but rhetorically, always being careful not to aspirate.

The pupil should, in addition, make the following exercise: utter the whole sentence in the manner of the chromatic scale; that is, begin with a high tone and descend a half tone with each syllable; and having reached the end of the sentence, repeat it in like manner but with each syllable ascending a half tone, his whole attention being directed toward maintaining the correct position of the vocal cords, as has been described in treating of chest-tones; that is to say, he ought always to have that sensation in the larynx which he has when uttering a vowel sound (*A'*, for example) with the spiritus lenis and not with the spiritus asper (*hak*). By this exercise the voice will be fitted for every modulation.

The pupil should perform these exercises within the compass possessed by his voice. If, for example, this embraces ten tones, he should first utter the whole sentence with all its variations in the lowest tone without any pressure either of the inner (intrinsic) or of the outer (extrinsic) muscles of the larynx; he should then do the same thing with the next tone, then with the third, and so on until he reaches the limit of his compass.

The scholar should here be particularly warned against the attempt to give the tone too great strength and fulness in vocal exercises. If he does this he either presses upon the larynx or squeezes the vocal cords together; and the tone becomes raw, hoarse and full of mannerisms. Without the least pressure he should form the tone very softly, strengthening it gradually; for only long and careful practice, not forced expulsion of air, can add strength and fulness to the tone,

SECTION 15.

PATH TRAVERSED BY THE SOUNDING AIR-COLUMN.

The air, which has been expelled from the lungs through the glottis and set into sounding motion by the vocal cords, acquires — on account of the manifold reflection which it constantly undergoes on the way from the epiglottis along the walls of the pharynx and the oral cavity, according to physical laws — the same curves and the same dimensions which this canal shows in itself; its direction, therefore, is decided by the position of the walls, between which it takes its course. Apart from the *natural* walls of this canal the form of the sound-waves depends also on the *position of the larynx* (higher or lower), on that of *the root of the tongue* as well as of the *tongue* generally, and also on the position of the *soft-palate*; and they are thereby induced to strike with greater intensity in some places than in others.

Let us take, for example, three such points and mark them in our explanation: *a, b, c*; *a* is the point where the posterior nasal orifices (posterior nares) are situated; that is, the pharyngo-nasal cavity; *b* is the soft-palate, and *c* the hard-palate at the roots of the upper incisors.

As the *timbre* (that is the real quality of a tone)

of the sounding air-column depends more or less upon the condition of the walls (harder or softer, drier or moister) upon which it impinges, each one of these points, *a*, *b*, *c*, might cause another timbre, because each offers in part at least a different kind of wall.

If the column of sound strikes with greater intensity on point *a* (the pharyngo-nasal cavity), we obtain the so-called *nasal tone*.

If the column of sound strikes with particular intensity upon *b* (the soft-palate), the sound is *full* but *dull*, and is permissible only where a *dull* coloring of the tone is absolutely necessary. (See "Timbre," page 66.)

But in cases where the palatal tone is to be gotten rid of, the point *b* is of the utmost importance, as a confirmed palatal-tone singer can only rid himself of the palatal tone by directing the sounding air-column upon *this* point.

If, through the position of the larynx and situation of the tongue, the canal is so formed that the sound-column strikes with more intensity on point *c* (the hard-palate at the roots of the upper incisors), the sound will be clear and possess the qualities of the best tone to be derived from these vocal organs.

Here, therefore (to express it popularly), will be the right "touch."

The singer, as well as the orator, requires much study to be able to guide the sound-column just to this point. *He can readily determine whether or not he has directed the sound-column to this point by observing if at this spot a slight sensation, not unlike a cool breath, is produced.*

This manipulation must not be considered very difficult. The Creator has given us such vocal organs that in their normal condition, that is, if we do not misuse the organs, the air-column always strikes with greater intensity against the roots of the upper incisors than it does against any other point without any exertion on our part; and only under falsely developed conditions or through a passion for achieving something extraordinary, do we change the position of the organs and induce a false "touch" and, consequently, an incorrect sound.

If we correctly pronounce the vowel *A'*, we have already the proper tone, for this is nothing else than the correct sound of the vowel *A'*; as, in fact, correct tone-formation depends solely on the right formation of the vowels.

Only when we can form a clear, correct *A'* (as in *far*) are we able to pronounce with ease, and with-

out depriving the sound of its purity and fulness, every other vowel with the same clearness, although the position of the tongue and larynx is different from that in *A'*; for the slight changes in the position of some of the organs, which are necessary in song in the case of certain vowels, are easily learned with a little attention. For instance, that with *A* (*hay*) and *E* (*he*) the larynx must be *lower*, and the root of the tongue be pushed somewhat *forward* and *downward*, so that the sounds produced with these vowels are not too thin and pointed.

The purity and the accuracy of *A'* are the principal requisites for speech and song. If we are not able to form a pure *A'*, it is impossible to acquire a correct tone; without a correct formation of sound, however, there can be no correct song. We may, therefore, justly say that, as a correct *A'* is the foundation of all vowels, the correct formation of sound is the foundation of song.

The hard-palate consists, as its name implies, of a hard, the soft-palate, of a soft mass. The "touch" of the air-column on the third point, *c*, will, therefore, lend to the sound more metal and hardness; that on the second point, *b*, more tenderness.

The moving the "point of touch" forward or backward, is left to the judgment of the singer or

speaker who has, in fact must have, the power to determine the course of the air-column, so that it shall strike with greater intensity on this or that spot. The nearer the "point of touch" is brought from *c* backward to *b* by a sinking of the larynx, the softer, but also the more obscure, does the tone become; and the farther forward it moves from *b* to *c*, by raising the larynx, the sharper and clearer do we find the tone.

If the "point of touch" goes beyond *c*, the tone becomes shrill and completely a *dental tone*.

SECTION 16.

POSITION AND ATTACK.

We have substituted these terms as the nearest to expressing the German *Ansatz* and *Einsatz*.

Until recently, opinions varied greatly concerning the signification of the words position (preparatory grouping of the muscles of the larynx for the production of a tone) and attack (the beginning of the tone). Lately, however, Dr. Carl Stoerk, of Vienna, has furnished new and interesting information, at least in regard to *position*. In a pamphlet entitled "Speaking and Singing," published in Vienna, 1881, he treats this subject in so excellent a manner, that it would be futile for us to try to present it in a more

interesting way. We will, therefore, let Professor Stoerk speak in his own words:

“Whenever conversation turns on phonetics, singing teachers or pupils, the word *position* is always heard mentioned. This word is often mere empty sound; its signification appears lost in obscurity. Students, as well as teachers, fondly fancy to possess a peculiar, particular *position*. As often as a pupil changes his master he says: ‘I have now got a new *position*.’ *Position* and *attack* seem closely allied conceptions, and yet each is quite different from the other. By *position* we understand a peculiar grouping of the muscles of the larynx in the throat, in order to give the larynx a certain position in which it can produce the desired phonetic result. A singer has a *position* and so has a speaker. The whisper of an actor is quite different from that of an ordinary person. Just so an actor, who has spoken loudly for a number of hours, must have a different *position* from that of one not required to perform such a task. If a person sees a heavy load approaching him, he must, in order to keep it off or force it back, cause a certain group of muscles to enter into action with a certain amount of power; that is to say, he puts himself on guard. This we know from experience. We know from practice which group of muscles to put into action, and with what degree of energy in any given case. These explanations may be applied to the larynx in regard to the so-called *position*. That is to say, the larynx, with its muscles, must so place itself that it rests in the correct *position* for a certain manifestation of power. There is a good and a bad *position*. The good is that in which only those muscles necessary for the intended tone-production are employed.

"We know that the larynx descends for deep tones and ascends for high ones. A certain degree of *position* has then been conferred on man by nature. Strange to say, there are singing teachers who allege that they have made the larynxes of their pupils quite independent of phonation for ascending and descending. How does the normal *position* look? For the *position* of the deep and chest-notes, where the object is to have the greatest possible number of muscles act and to effect a rounding of the larynx, not a square stretching of frame, let it be so placed that, if possible, it be exactly held in that position in which it ordinarily lies. The correct grouping and holding of all these muscles, which must have a firm tension, constitute a correct *position*.

"There is still another thing necessary, however. When, for instance, a person grows fatigued in one set of muscles—let us say the inner muscles of the larynx,—this deficiency must be covered by the action of other muscles. If it be conceived that every movement of a muscle is not the result of the contraction of one muscle alone, but of the combined contraction of several groups of muscles, then it will be understood how phonation is brought about by the action of a number of muscles. All these muscles must act simultaneously, and when one of them grows tired another must be all the more tensely drawn.

"If we look with the laryngoscope into the larynx while it is set for *chest*-notes, as Fig. XXXII shows, then the larynx must be broadly stretched, the false vocal cords more tense than the true, the soft-palate drawn up so that only a part of the air is carried into the nose, and the muscles of the throat lie close to the sides; this is the correct *position* for a normal chest-voice. At the moment of exhaustion, the muscles, which reach to the tongue

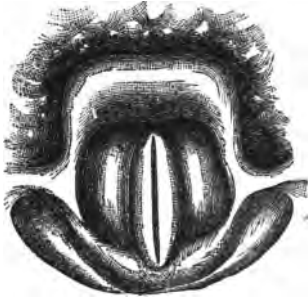


FIG. XXXII.

POSITION OF THE LARYNX IN CHEST-TONES.



FIG. XXXIII.

POSITION OF THE LARYNX IN FALSETTO-TONES.

for the support of the larynx, rise, and at the instant when the correct tension is produced, the arches advance a little. There are persons, however, who always have this tension; that is to say, they sing with a wrong *position*.

“In falsetto singing the arrangement is, of course, an entirely different one. The frame of the larynx is here more oval (Fig. XXXIII). The muscles, from the larynx to the sternum, must be more tense, as also those imbedded in the arches; a free space must be left toward the central line, as in falsetto voice the correct position is to have the soft-palate quite drawn up, the larynx elevated and the resonator shortened. Were the palate not closed the tone would not be carried to a distance. To prevent this, the soft-palate rises and the arches approach each other. If this does not happen there is a wrong action of the organs; the *position* is incorrect. Through the soft-palate not being drawn up, a nasal tone would be produced.

“In normal singers, fatigue is often the effect of wrong position. An overtired singer will give forth a pinched

tone. Normally, the space, which I have designated as a canal from the larynx to the lips, is open. When the singer grows tired, however, he narrows this space by elevation of the tongue and sinking of the epiglottis, whereby sufficient room for free exit of the air is no longer given; the air is, so to say, pressed together.

"This state of affairs, which in normal singers ensues only when they are fatigued, is with others quite a common thing. Such persons have a wrong *position*."

In regard to *attack*, Prof. Stoerk tells us nothing new,—nothing that we have not already learned in this book, or will yet learn in Section XXI, that is: The note must sound forth instantaneously at the correct pitch and without any previous aspiration; hence not as *spiritus asper* (*h*), but as *spiritus lenis*. (See beginning of Part II.) No more pressure of the muscles must be applied than the desired tone requires, be it in *piano*, *forte*, or *mezza voce*. This the singer must learn to do, and then we say he has a correct *attack*. This can be acquired only by a good ear, which will contribute greatly to its perfect development.

SECTION 17.

HOW TO INCREASE THE COMPASS OF THE VOICE.

A belief still prevails among pupils and teachers—especially among piano teachers who, without any

knowledge of the human voice, but simply because they can perform on the piano, pretend also to be able to give instruction in vocal music—that it is possible to alter the compass of the voice at will, to make it ascend or descend in the scale, according to one's desire. *This belief is the ruin of many a voice which, with proper training, might have achieved fine results.*

Nature has provided every human being with vocal organs; but the structure of these organs varies in different persons; the vocal cords being longer or shorter, the larynx larger or smaller, the air-passages more or less elastic, and the resounding walls of the passages stronger or weaker.

If it is sought to increase somewhat the compass of the voice, especially to increase the upward range, then the only way to do this is for the pupil to make the sum of the tones which he can readily produce and can properly designate as the compass of his voice, the exclusive subject of his study; to cultivate these tones alone, with a correct method. Only in this way will the vocal cords gradually acquire increased *elasticity, extensibility* and *power* of vibration,—qualities which are the essential condition of the formation of high tones.

If the teacher fails to examine closely the natural

compass of the voice, but, on the contrary, endeavors from the start, without any previous exercise of the tones that can be readily produced, to forcibly increase the compass in its upward range, then the ruin of the voice is certain. No forcing is permissible in the exercises; and it is an error to suppose that anything can be gained by hurrying on the instruction. The vocal organs can only by slow degrees be brought to produce the desired results.

If the voice has been thoroughly trained within its natural compass, the pupil will perceive with surprise and delight that its compass has actually been increased, without anything special having been done toward this object, and that the acquired tones, few though they be, can be produced just as easily as the old ones.

The tones thus freshly won should be incorporated in the regular exercises, special care being taken in exercising them, and they should be made uniform with the rest.

SECTION 18.

INSPIRATION TO BE PERFORMED COMPLETELY AND AT THE RIGHT TIME.

It is possible to expel all the air from bellows, but the lungs, which we can compare to bellows in regard to inspiration and expiration, differ from these in so far that no full expiration can ever take place. The

art of singing and even speaking requires that much less air be drawn from the lungs than they can give.

In an organ or other similar instrument the stock of air must never be entirely exhausted in playing; in like manner during continued activity of our vocal organs, *we must retain a certain amount of air, so that we may at any time produce any required degree of respiratory pressure.* Toward the extreme end of an expiration the strength of the air-current diminishes considerably; by waiting until this occurs, the lack of breath requires an inspiration, which, being longer than the desired duration, produces perhaps, an inappropriate pause in singing or speaking.

As we do not, like the organ instruments, possess several bellows for filling our lungs, of which one maintains the air-current during the inactivity of the others, it is necessary to refill the lungs with air at every favorable moment of rest, before they have been completely emptied.

The want of several bellows is supplied in the human vocal organs by their ability (unlike every artificial instrument) to produce great effects with the smallest quantity of air.

Many believe that perfection in rhetoric consists in speaking as long as possible, without renewing the

air in the lungs, or, as it is generally called, speaking with one breath. This remark applies also to singing. They, therefore, take great pride in overlooking all commas, or, frequently, also other marks of punctuation, and in speaking two or three lines of the most diverse thoughts, or singing several different passages, *without inspiring once*, as they boastingly say.

This is entirely false. Long breath is undoubtedly of great importance, but only in passages in which inspiration cannot take place without interrupting the thought; in calm speech, which requires little consumption of air, it is also permitted to inspire less; that means less frequently. In all impassioned or emphatic speech and song, however, it is the *first rule to inspire as often as the thought permits*. *This is an absolute necessity*, for violent speech requires much more air than calm speech.

But apart from this, it is necessary for the simple reason that with constantly renewed breath the thought becomes more clearly defined, for expression depends not only upon the words, but also upon the coloring of the tone, and the singer or speaker would never succeed in making very perceptible distinctions with one inspiration. By repeated inspiration, the lungs being always, even after the

slightest thought, put into the "state of readiness," the sound will be powerful, clear and metallic; whereas the strongest man, with fully developed lungs, by speaking much with one inspiration, will express only the first part of the sentence clearly and purely, while the latter part will be lacking in metal, purity and strength.

If, for instance, we express the following thoughts: "*Oh, this woman! What did I say? Have you seen her?*"—and we speak this, as is frequently done, with one inspiration, we shall clearly perceive that the beginning of the last thought, "*Have you, etc.,*" is less clear and pure, and the end considerably weaker and less metallic than the commencement, "*Oh, this woman!*"

If, however, we say, "*Oh, this woman!*" (short inspiration) "*What did I say?*" (short inspiration, so that the lungs always return to the "state of readiness") and then, "*Have you seen her?*" the last sentence will have the same coloring, the same power, the same metal, as the first.

It will be readily understood, from what we have said, that these inspirations must be neither audible nor visible.

We must also remember that it is not only necessary to inspire frequently, but to *inhale sufficient air*

with each inspiration. *This is of great importance.* If, by one inspiration, we do not bring sufficient air into the lungs, we shall have less in the next, still less in the following, etc.; and, in consequence, we shall be compelled to take a long, rapid inspiration (requiring much more time than the thought permits, sometimes even in the midst of a sentence) and make our breathing audible and unpleasant.

To prevent this, every inspiration, the shortest as well as the longest, must supply the lungs with as much air as the speaker has consumed in the preceding sentence; or, as this would be difficult to determine, to speak more plainly: the lungs, after every sentence, even if this consists of but two words, must be brought to the "state of readiness," as has been said in Section 3.

Particular attention should be paid to the strict observance of this last rule, for the non-observance or superficial application of the same is the cause of so many imperfections in rhetoric and in song, in regard to breathing.

The singer or speaker should, immediately after finishing a phrase, be it long or short (slowly in a long pause, rapidly in a short one), inaudibly bring the lungs to the "state of readiness;" and, if utterance is resumed after a few seconds, he should retain

the air until then ; but if a somewhat longer pause (not, however, permitting a positive rest) occurs, he should keep the lungs fully supplied by drawing short, inaudible inspirations with expanded chest, by means of the diaphragm (the feeblest inspiration will suffice if made frequently).

In this way, he will be enabled to breathe without permitting the air contained in the lungs to escape entirely, as is done in a full expiration. If he now begins a new sentence, after having kept the air-receivers constantly filled, he avoids the unbecoming, visible and audible "preparation" by which, as it must be performed rapidly, head, shoulders and chest are moved in an unsightly manner.

We have spoken of a slow and a rapid inspiration. Special attention must be called to this rapid inspiration which we term the "short" one, and which is of the utmost importance in song and speech. We may attain in this such a point of perfection that after every comma, even if this is repeated after every two or three words, it may with the greatest advantage be applied in rapid speech. It naturally requires much practice, but we can and must succeed.

Without the ability to make at will this "short" inspiration, which must always be inaudible, it is simply impossible to take part in a lively dialogue,

as by taking a deeper and slower inspiration, an involuntary pause (if ever so small) would check the flow of speech, and lessen considerably the vivacity of the dialogue. This rapid inspiration must, therefore, be practiced carefully, and must by no means be audible or visible.

Much time will usually elapse before the speaker acquires the ability to refill the lungs immediately after having completed a sentence, for his thoughts are generally still occupied with the just-completed sentence, and he forgets to inspire immediately.

Only by continued practice will this become second nature, and it will be impossible for him to speak without this short, rapid inspiration.

Many, who have understood the necessity of frequent inspiration, make, however, the following mistake: As soon as they have completed a sentence, they close the mouth tightly, compress the lips, and then inspire through the nose; in consequence of this there results a noise like that of audible sniffing. This is just as incorrect as the audible inspiration through the contracted glottis.

We remarked at the beginning of this section, that a long breath is of great importance in passages where taking breath would disturb the expression

of the thought. We shall explain this more fully by means of a few examples.

There are moments in which a deeply-excited person is too much affected to contain himself sufficiently to follow the slow succession of words; he gives vent to his feelings in mute actions, then gestures, postures, glances precede the words as the lightning does the thunder.

There are cases, however, in which a person, carried away by excitement, suddenly recalls all the required expressions. Words rush to his lips as quickly as thoughts originate in his mind; both arise instantaneously, and follow each other without an interval.

The utterance of the actor or orator should, in this case, be compressed, produced hastily, as if with one outburst, but he must avoid giving the public the impression of exertion, by being suddenly forced to draw a long breath. Drawing a long breath always is a means of rest, which, done at an improper point, subdues the fire of the moment and destroys its effect. If, for instance, the actor representing Shakespeare's Shylock, in Act III, Scene I, where he addresses Salarino, saying,—*"Hath not a few eyes? Hath not a few hands, organs, dimensions, senses, affections, pas-*

sions?" should wish to take breath after each comma, or even only once, the extraordinary gradation of passion contained in these words would be utterly destroyed. In this and similar cases it is absolutely necessary to command a long, powerful and effective breath, if we wish to give full expression to the thought and produce the greatest possible effect.

Passion does not always yield to the rules of grammar; it does not always stop where grammar requires; it has usually no regard for periods, commas, etc.; it omits or transfers them according to the irregularity of its outbursts.

To be fully able to represent this artistically, a complete mastery of the respiratory organs is absolutely necessary. Only then, as far as regards strength and power in expenditure of air, will the orator be able to produce an effect like to that of the roaring whirlwind, or the soft, gentle breathing of the zephyr.*

When Shylock, continuing, says: "*Fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer, as a*

* Artists like Salvini and Rossi, whom the author lately saw and admired, are examples of this imagery.

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Christian is ;," in this case the actor should make a short, rapid inspiration after every comma (with the exception of the last before "*as a Christian*").

For only by means of these short and rapid inspirations can these lines be spoken fluently and with the requisite fervor and rapidity. Long inspirations in this case would destroy the wonderful rhetorical construction which Shakespeare has arranged.

It naturally requires a long time to become such an adept in the practice of this short and rapid inspiration as to make its application appear second nature. The *short, quick* inspiration is accomplished by *side-breathing* ; the *slow* inspiration by *abdominal breathing*.

When the lungs have become somewhat strained by singing, the best way to refresh them is to make a few successive respirations faster than usual.

SECTION 19.

BREATHING AFTER AN IMPASSIONED PHRASE.

Most speakers and singers, on coming to the end of an impassioned passage in like impassioned manner, fill their lungs again visibly and audibly. This is altogether wrong.

There may, indeed, be situations where to make a quick and audible inspiration is not only permissi-

ble, but necessary (as, for example, in the expression of anger or rage, or in a comic position), but in general the rule must be observed to make slow and deep inspirations. •

SECTION 20.

BREATHING WHILE THE BODY IS IN ANY POSITION.

When a person has finished an impassioned locution, and the body has for a moment assumed an expectant or defiant attitude, he, as a general thing, retains the breath while that posture lasts (of course, only if the duration be short). But in art it is different. *While it should seem as though the breath, like every member of the frame, up to the muscles of the face, were perfectly still, the actor should fill the lungs well, slowly, inaudibly and invisibly* (employing that method of respiration best conforming to the momentary position of his frame), in order to have the lungs in a "state of readiness" for his next utterance, *so that he should appear to have enough air in the lungs for any expiratory movement.*

In those cases in which the body has assumed a decided, fixed posture, and it is sought to retain it for a time in this position as firm and immovable as possible, and where a long and deep inspiration, a prolonged retention of the breath and a complete

expiration are necessary, then the position of the body will determine the mode of respiration to be resorted to — whether *abdominal*, *shoulder* or *side-breathing*, or a *combination of these movements*. For the attitude of the frame, previous to respiration, will permit certain portions of the lungs to expand more freely than others; that is to say, to become more easily filled with air, so that the mode of respiration is thereby determined to a greater or less extent.

SECTION 21.

NOT MORE AIR TO BE EXHALED THAN IS ABSOLUTELY ESSENTIAL.

It is astonishing with how little air man may produce sounds, and that the sounds, produced with little air (if the vocal cords are in normal condition), are the finest in *piano* or in *forte*, because too much air imparts to the tone a hoarseness, frequently a screeching sound, and both these qualities destroy the tone.

If the rule, to produce a great effect with little air, must be generally observed, it is especially necessary where the utterance is rapid and forcible; here it is necessary to speak, as it were, with diminished consumption of breath, that is, here we must scrupu-

lously observe the principle to expire only as much air as is absolutely necessary.

It is especially important to confine ourselves to a small consumption of air, if we wish to change from a chest to a falsetto tone (be it in singing or speaking).

In such cases, that the transition may not be unpleasantly audible, we use but a small quantity of air; in fact it is in this way only that the transition can be made æsthetically.

The slow emission of air from the lungs, for phonetic purposes, is effected by permitting the feeling of expansion, produced in the lower chest and in the abdominal muscles by a full inspiration, to gradually subside; that is to say, *by keeping the upper chest immovable*, by allowing the contracted lower external intercostals (see page 36), which raise the ribs, to slowly relax, also allowing the contracted diaphragm to gradually relax; and by the slow contraction—which begins simultaneously—of the lower internal intercostals (see page 36), which draw the ribs down, and of the abdominal muscles, especially the *musculi transversi* (see Fig. XIII, *c*, *d*), which draw back the abdomen. In addition to the foregoing, the emission of inspired air is made slow by diminishing the opening of the

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glottis, as much as possible, but without pressing the vocal cords together. On the other hand, by the rapid sinking of the ribs, the quick yielding of the diaphragm, the immediate relaxation of the vocal cords and the sudden widening of the glottis, the air is at once expelled from the lungs, as we have learned in Section 7.

SECTION 22.

BREATHING THROUGH THE NOSTRILS.

Breathing through the nostrils is very essential, because not only is this less noticeable than breathing through the mouth (with which we inhale usually less air than by means of the nostrils), but it has also the advantage of not drying the mucous membrane of the oral cavity, the entrance to the throat, the throat itself and the vocal cords, as the frequent inspiration through the mouth is apt to do. *And the moisture of these parts is one of the most important qualities required in originating a tone.*

Every singer or speaker should, therefore, breathe as far as possible through the nose, and should make use of every opportunity that presents itself for doing so. But where is there such an opportunity? Wherever he has two or three seconds' time, which is quite ample for a full inspiration.

But in inspiring through the nose, we should not move the muscles as though we wished to smell; this checks the air which is to be inhaled, and becomes unpleasantly audible. Inspiration should be performed solely with the inspiratory muscles (the diaphragm and the external intercostals), the nostrils to be used only as openings for the passage of the air. We should also be careful not to compress the lips, while inspiring through the nostrils. Compressing the lips tightly reduces the opening of the nostrils, whereby inspiration is rendered infinitely more difficult, and a noise is produced as in audible smelling.

With regard to the health, breathing through the nostrils is also of the greatest importance. Those who are especially interested in this, should read Catlin's "Shut Your Mouth."

SECTION 28.

TIME AND DURATION OF THE EXERCISES.

I propose the following method of exercise, which many years' experience with my pupils has shown to be attended with excellent results:

Having risen in the morning and refreshed the body, or at least the neck and the bust, with a cold ablution (or taken a bath in summer), the pupil should dress, not too heavily or too tightly, and perform a quarter of an hour's bodily exercise, as has been described in Part I, with the proper intervals

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of rest. After that, wait a quarter of an hour; then take breakfast, and half or three-quarters of an hour after it begin the exercises with the vocal organs. The exercise (whether singing or speaking) should never be performed continuously for more than ten minutes; allow a pause of five minutes and begin anew. When, through several weeks' exercise, the muscles have been brought up to a certain point of endurance, the time should be extended to a quarter of an hour, the interval of rest remaining five minutes. In the first four weeks the total duration of the daily exercise must not exceed an hour in the forenoon and an hour in the afternoon. After four weeks another half hour may be added, and at the end of eight weeks the exercises may be made as long as one's powers will readily allow; the moment, however, that any unpleasant sensation begins to manifest itself, the exercise should be suspended.

In regard to the method of the exercises, it is merely necessary to observe here that they should be performed, if possible, at regular hours of the day; that one should begin with the less difficult, and gradually proceed to those which are more exerting; for it is only through their gradually increased activity, combined with the constantly recurring intervals of rest, that the muscles can be

effectually strengthened, as we have seen when treating of these organs. After a meal, the singer or actor should not begin until the main work of digestion has been accomplished; that is, after two or two and one-half hours.

The following extract from Angelini Buontempis' "History of Music," bears witness to the extreme care which the Italian singing schools, founded by Pope Sylvester at the beginning of the fourth century and carefully fostered by the church, bestowed on the perfecting of their pupils:

"The pupils of the Roman school were obliged to practice difficult intonations for one hour daily in order to attain facility of execution; another hour was employed in the practice of trills; another hour for rapid passages; another hour in the study of literature, and still another hour in the improvement of taste and expression—all in the presence of the master, who took care that the pupils sang before a looking-glass, in order that they might learn to avoid every sort of grimace or wrong movement of the muscles, such as wrinkling the forehead, winking the eyes, or distorting the mouth. All this was the occupation of the *morning only*. In the afternoon a half-hour was devoted to the theory of sound; another half-hour to simple counterpoint; one hour to the study of the rules of composition, which the master gave them, and their application on paper; another hour to literature, and the rest of the day was given to playing on the piano, to the construction of a psalm, a motet, or any other sort of work in accordance with the pupil's taste and talent. These were the usual exercises on days when the scholars were not permitted to leave the school. On the other hand, however, when they had permission to go out, they frequently went to the *Porta Angelica*, near Mount Marius, there to sing against the echo, for the purpose of learning, by the answer, their own errors. At other times they were employed to sing at public performances in the churches of Rome, or they went thither for the purpose of hearing the many masters who flourished under the papal government (1624-1644) in order to work at home, after these models."

In all that has been stated, we believe to have fully explained the system of inspiration and expiration, and by a close and scrupulous observance of the rules laid down, the orator and the singer will meet with certain success. As, however, a strict

compliance with all the details is not always persisted in, at least at the outset, and as, after all, there might arise some perplexity in regard to inspiration, we have deemed it necessary to provide for such a contingency, by a few special instructions, which, however, are to be applied only in cases of such perplexity.

SECTION 24.

WHAT TO DO IF, THROUGH CARELESSNESS, THE LUNGS ARE EMPTIED TOO SOON.

If, in spite of all due care, it should happen, that, as is generally said, the breath gives out, and we are compelled to inspire before the last two or three words of the sentence, and by this spoil every thought and destroy every effect (as, unfortunately, so frequently happens), *there is but one remedy* ; it is the following :

In our system of inspiration, the activity of the abdominal muscles is of the utmost importance, and in such an emergency it is these alone that can save us from the disagreeable division of a sentence and the complete spoiling of the effect.

In case that the supply of air gives out, and we are unable to draw any more air from the lungs by the action of the ribs, we must bring the abdominal

muscles into greater activity; and, by pressure upon the abdominal organs which, forced upward, exercise a pressure upon the lungs, enable ourselves to force as much air from the lungs, as we still require for the remaining words.

It is wonderful how this manipulation, *which is the only correct one*, helps us over every obstacle; we must, however, *not abuse it*, but apply it only on the most urgent occasions; otherwise we must strictly conform to the prescribed rules.

SECTION 25.

WEARING APPAREL IN REGARD TO BREATHING.

Singers and speakers should always see that their attire allows the necessary play to the organs of respiration. With concert singers, declaimers and public speakers this is at all times practicable; but it is not always so in the case of dramatic performers. Among the various kinds of costumes which they have to put on, there are some the cut of which is not favorable to free respiration, inasmuch as they compress one or the other of the groups of respiratory muscles

The actor can easily avoid this by making himself acquainted in time with his costume and causing any

necessary alterations to be made. Many a fine effect has been lost to the dramatic artist by his having become aware too late that his attire greatly compressed his respiratory organs.

Such considerations, however, will weigh lightly with our ladies, whose figures resemble a wasp rather than a human being, and with our beaux, who are so thoroughly of opinion, that "the smaller the waist, the greater the work of art;" and we, therefore, advise the former, as long as they persist in lacing, to see to it that not all the groups of respiratory muscles are thereby affected.

Whoever desires a healthy development of the lungs, must be careful to relieve the respiratory organs from all pressure.

We have now reached the end of our "System of Correct Breathing in Singing and Speaking."

I may incur the reproach that my rules lead to pedantry and stiffness. "Who," it may be asked, "will or who can follow these rules with such strictness? They are too complicated!"

To this my answer is: No rule, however simple, will ever attain the desired result, unless we practice it with the greatest perseverance, with the utmost patience; until it has become second nature, until it can no longer be noticed, because warm, fresh life has taken the place of the cold, lifeless rule.

SECTION 26.

EXPRESSION.

A general remark concerning expression may still be in place here at the end.

We should always seek to preserve a certain nobility of expression. In our ordinary life the muscles of the face are contracted by pain in a way unpleasant to the sight. In crying the glottis closes and emits short, broken and disagreeable sounds. But it is a different thing in art. Here we must strive to throw an æsthetic veil over every emotion, whether of pain or of pleasure. In the representation of the deepest emotion, originating in the recesses of the heart and reflected in the features and voice, we should never allow the look, the tone or the words to go beyond the limits of the fine and the exalted; we should have such a command over our respiratory and vocal organs that, while the glottis emits the most profound tones of pain or of pleasure, these should never be ignoble, unpleasant or ugly, except indeed, it be the intention to produce a characteristic or comic effect.

If this principle were strictly observed, that is, were the artist to apply himself more assiduously to securing a full command of the muscles, we should

then not see what so often happens, especially with ladies, the features greatly distorted in the representation of emotion. In fact, many persons, in their ordinary conversation, change their naturally not ignoble features to their disadvantage; and it is rightly said of them that "they are handsomest when they are silent."



PART FIFTH.

A METHOD FOR THE CURE OF STUTTERING
AND STAMMERING.



PUBLISHER'S NOTE.

In justice to Prof. Guttman, as well as in justice to myself, I state that his exact language has been used, and that I have made verbal changes only when they were necessary to make clear his meaning. This will explain the peculiar style, which leaves no doubt that a foreigner is speaking.

I first met Oskar Guttman just after my return from a several years' sojourn in Europe, where I had been under the treatment of a number of leading speech-specialists for my own defect of speech. I had been drilled in the analytic and synthetic oral use of the German language, and was familiar with the technical terms employed in such instruction. I mention this to show that probably no other American pupil of Prof. Guttman as fully understood the teacher and entered as thoroughly into the spirit of the teaching as I did; for Prof. Guttman, although quite familiar with the English language, still was not master of it, and frequently was unable to find an English expression for his thought. With me he would drop from English into German and from German into English, whenever the occasion demanded or inclination prompted. Hence I believe that I have had exceptional advantages over other American pupils, and that I have priority of right to speak for Prof. Guttman now that he can no longer speak for himself. Besides, I feel that it is a duty imposed upon me.

Oskar Guttman was not understood or appreciated. We had a great teacher among us, and we heeded him not. I, for one, confess it with sorrow and humiliation. He went to his grave in obscurity and in poverty, heart-broken, with his mission unfulfilled. He possessed knowledge that should have been given to the world. Gladly would he have adopted a professional heir, had one worthy been found. He left no such an heir.

I became Oskar Guttman's pupil and, subsequently, his publisher. He confided to me many ideas, both in oral and in written form, that proved him to have been an investigator and a formulator in advance of his time. Others have reaped the harvest that belonged to him. My task it is—and a pleasant one, too—to put in permanent and accessible form that part of his professional activity that pertains to stuttering and stammering, in the hope that it will set free many now chafing in the bonds of fettered speech.

EDGAR S. WERNER.

GENERAL REMARKS.

During many years of professional activity and of devotion to the investigating of the laws underlying the origin, developing and strengthening of voice and speech and the removal of defects, I have observed that directions for exercises, in the comprehension of which the eye takes part, yield much quicker and surer results than exercises that are merely described in words. Whatever the pupil hears or reads and at the same time sees, impresses itself upon him far more speedily and produces surprisingly quicker results.

Therefore, I have prepared Tables to be used by the pupil during the practice lesson. Each of these Tables contains a separate piece of poetry or prose, the words of which are accompanied by constantly recurring fixed signs, arranged into a system somewhat comparable to the notes in music.

These signs, though far from having or pretending to have the significance of notes, are, nevertheless, of the utmost importance to the student, for they show him the exact place where he must produce the voice, the sounding-consonant, the voice-

less consonant (which is capable of prolongation), the explosive consonant; and, to a certain extent, they even show him the duration of all these. These signs arouse in the student the feeling for correct breathing, for production of sound and correct speech, syllabically as well as rhetorically.

The practice of such a piece of poetry or of prose must be carried on in *one* tone (that is, on one pitch), the one which the student can produce without the slightest exertion, and in six different ways, viz.:

1. Speaking the whole line syllabically, and taking after every syllable a new breath fully and deeply.

2. Speaking two syllables in one breath syllabically, and inhaling again.

3. Speaking half of the line in one breath syllabically, and inhaling again.

4. Speaking the whole line in one breath syllabically.

5. Speaking the whole line in one breath rapidly, and always syllabically.

6. Speaking the whole line not syllabically, but rhetorically, without any force, guided only by feeling.

The replenishing of the lungs in this quiet, slow manner, after each syllable, is intended to bring breathing fully to the student's consciousness. Each

syllable being pronounced with full lungs and with careful avoidance of aspiration, the tone will gradually become sonorous, and in this way will most readily accustom his ear to recognize metallic quality and clearness in tones. The purpose of this way of breathing, first after one syllable, then after two, then after four, eight, etc., always combined with tone and words, is gradually to accustom the lungs to the reception of a greater quantity of air. If this be done without words, the student will not feel the necessity or estimate the correct quantity of air for breathing, and the whole will be merely a muscular movement.

The reason why the student should undertake the first five treatments of the sentence in only one tone, and that the one he can most easily produce, is gradually to bring the correct action of the vocal cords, which at first is quite involuntary, so forcibly to his consciousness, and to make it so nearly second nature, that in the rhetorical part (in the formation of a higher or a lower tone) he will at once feel an incorrect or a defective movement, and be able to change it into the correct one.

. The *manner* in which the Tables are arranged—that breathing, voice and speech are, from the start, simultaneously active—is intended to improve the prevailing mode of instruction, which consists more

or less in treating the various parts as *parts* mechanically, a practice which never, or seldom, leads to a favorable result; for the human organ of voice and speech acts from childhood as a *whole*, and should be treated as such in the exercises. The student must always have the feeling that he inhales for a certain purpose, for singing and talking, and must not exhale the air aimlessly.

The various parts are cared for in these Tables by giving them a shorter or a longer duration in the exercises, always, however, with due regard to the whole, as will be seen in the explanation of the Tables.

These Tables, prepared by me long ago, but never printed or published, and used only in my private instruction, after having stood the test of thirty years' successful practice and proved of great benefit to innumerable students, I now, for the first time, commit to the public in print for the use of teachers as well as for self-instruction.

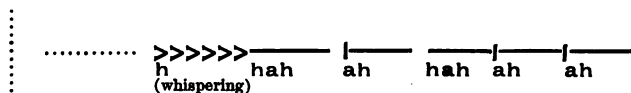
OSKAR GUTTMANN.

EXPLANATION OF THE TABLES USED IN THE GUTTMANN SYSTEM.

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THE following figures are the graphic representation of my system.

Fig. 1, a. Fig. 1, b. Fig. 2. Fig. 3. Fig. 4. Fig. 5.



A vertical dotted line denotes inaudible inspiration, quiet and even; (Fig. 1, a)


A horizontal dotted line (Fig. 1, b) denotes inaudible expiration, quiet and even;

Several successive horizontal arrowheads >>>>> (Fig. 2) denote audible expiration (whispering);

A horizontal straight line ——— (Fig. 3) denotes sounding expiration, voice (with “indirect attack,” that is, soft, undefined, or more or less aspirated: **hah**);

A horizontal straight line beginning with a vertical dash |——— (Fig. 4) denotes “direct attack;”

that is, firm and decided, with closure of the glottis:
ah;

Every interruption of a straight line by a vertical dash  (Fig. 5) denotes that at each such point, the resumption of the voice must be effected with "direct attack."

Audible expiration (Fig. 2) is used for producing simple voiceless and certain compound voiceless consonants.

The simple voiceless consonants are :

K and its equivalent *C* (hard) and *Q* ; *F*, *P*,
T, *S* (as in *sit*) and its equivalents *C* (soft, as
in *cider*); *Th* (as in *thin*), *Sh* and *H*.

The compound voiceless consonants are :

Ch (compound of *t* and *sh*) and *X* (equivalent
to *ks*, as in *axe*).

Sounding expiration (Figs. 3, 4, 5) is used for producing all vowels (the human voice), as well as the simple and compound sounding consonants.

The pure vowels are :

E (as in *he*), *A* (as in *hay*), *A* (as in *ah*), *O*
(as in *or*), *O* (as in *oh*), *O* (as in *cool*).

The simple sounding consonants are :

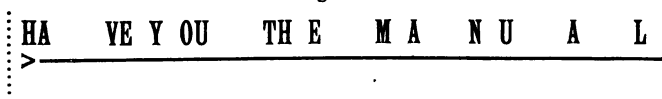
L, *M*, *N*, *R*, the nasal *N* (*ng*, *nk* as in *sing*,
sink), *V*, *Z* (as in *zone*), *Z* (as in *azure*), *Y* (as
in *ye*), *W* (as in *woe*), *Th* (as in *then*), *B*, *D*,
G (as in *give*).

The compound sounding consonants are :

J (compound of *d* and *z*, as in *azure*), and *X* (equivalent to *gs*, as in *example*).

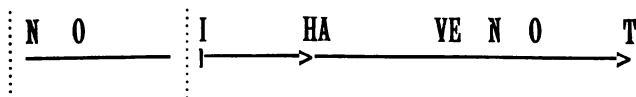
If we set Figs. 1, 2, 3, 4, 5 before and under words in the necessary distance one from the other for the exercises, and pronounce them as indicated later on, we shall have Figs. 6, 7, 8, 9.

Fig. 6.



In this sentence we have one inaudible inspiration (the vertical dotted line); one audible expiration (the arrowhead); passing at once to the sounding expiration (the long straight line), which lasts uninterrupted till the end of the sentence, as the sounding consonants **V, Y, TH, M, N, L**, can be produced only by the voice.

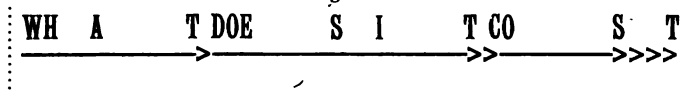
Fig. 7.



In this sentence we have one inaudible inspiration (the vertical dotted line); one sounding expiration—voice—(the horizontal straight line under **NO**); one inaudible inspiration before **I**; one sounding expiration with "direct attack" under **I**; one audible ex-

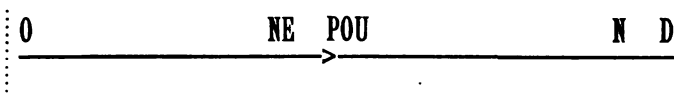
piration under **H**; one sounding expiration under **AVE NO**; and one audible expiration under **T**.

Fig. 8.



In this sentence we have only one inaudible inspiration (the vertical dotted line); one slight audible expiration (as the **H** in **WHAT** is produced before the **W**); one sounding expiration under **WA**; one audible expiration under **T**; one sounding expiration under **DOES I**; one audible expiration under **T** and one under **C**; one sounding expiration under **O**; one audible expiration under **S**,* and one under **T**.

Fig. 9.



In this sentence we have one inaudible inspiration; one sounding expiration with "indirect attack" under **ONE**, as this word is spoken as if it were written **WON**; one audible expiration; and one sounding expiration.

Under every consonant of audible expiration (Fig. 2) lies one arrowhead.

If two consonants of this expiration form only

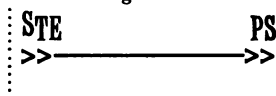
*Why there are three is explained later on.

one sound, then only one arrowhead lies under both.

If two, three or more arrowheads are under such a consonant, this denotes a holding of it.

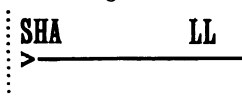
Examples are Figs. 10, 11, 12.

Fig. 10.



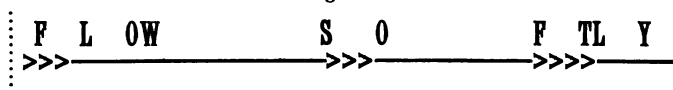
Produce every consonant in the word **STEPS** short and decidedly phonetic, not by name; hold the **E** (as voice) a certain time.

Fig. 11.



In this word two consonants form only one sound, therefore only one arrowhead is under both.

Fig. 12.



Here there are three arrowheads under **F**, **S**, and **F**; therefore, hold their sound.

Before beginning the consonant or consonants at commencement of a word or syllable, and during the duration of its or their sound, the cavity of the mouth must be formed for the following vowel, so that no intermediate sound may be heard in the

transition from the consonant to the vowel, a fault which must ensue if the cavity of the mouth, during the production of the consonant, is formed for another vowel, as, for instance, *seo* for *so*, which results because during the production of the sound *s*, the cavity is generally formed for *e*. In order to avoid this lack of clearness in pronunciation, practice the syllable *so*, reversed, *os*, and hold the sound of the *s* for some time; then, without interruption, add *o*; do this several times, and then pronounce *so*.

The vowels can sound as long as the air, streaming from the lungs, lasts; likewise the sounding consonants, except *B*, *D*, *G* (as in *give*). Of the voiceless consonants, only *H*, *F*, *S* (as in *sit*) and *C* (as in *cider*), *Th* (as in *thin*), and *Sh* (as in *push*) can sound as long as the air lasts. *P*, *T*, *K* and *B*, *D*, *G* (as in *give*) must be considered only as explosives, the first three produced by mere air, the last three by the voice.

The horizontal straight line always denotes the uninterrupted voice; should it, however, be necessary for the voice to be interrupted, not by a new breath, but by a new "attack" of the vowel, for the sake of greater distinctness, we shall obtain, according to our system (Figs. 4 and 5), Figs. 13 and 14.

Fig. 13.

WHE NA LLTHY ME RCIE SO MY GOD

Fig. 14.

THE N A LLMY I NTE RE ST

In such cases, denoted by a vertical dash, the voice must be suddenly interrupted for a moment, and the beginning vowel be produced with "direct attack." If we fail therein, we hear in (Fig. 13), **WHE NALL THY MERCIE SO MY GOD**, and (in Fig. 14) **THE NALL MY YINTEREST**.

REMARKS ARE ON THE USE OF THE TABLES.

(1) Before beginning to use the Tables, practice Figs. 1 (a and b), 2, 3, 4 as a whole; that is, after a full, deep, inaudible inhalation, exhale inaudibly for two or three seconds, and, without interruption, pass over to audible expiration for the same length of time, then to sounding expiration with "indirect attack," then to sounding expiration with "direct attack," so that the whole process is one expiration, graphically represented in Fig. 15.

Fig. 15.

.....>>>>—————|—————

Practice the exercise, with pauses, until the activity of the vocal cords has become fully evident to your feeling, and you are able to produce, with facility, the whole figure or any of its parts.

(2) Before the practice of a Table, inhale slowly and deeply, and exhale slowly and completely, half-a-dozen times; after that, practice for half-a-dozen times the exercise just described above.

(3) Pronounce distinctly all consonants phonetically and not by name; * repeat this several times, and at the sounding consonants as well as at those voiceless ones which are capable of prolongation, hold the consonant for some time (in order to bring its origin and character well to your consciousness); diminish the time at every repetition, until, finally, the consonant merely represents its ordinary duration in language, graphically represented in Figs. 16 and 17.

Fig. 16.

F F F F
 >>>> >>> >> >
 Voiceless consonants.

Fig. 17.

V V V V
 ——— ——— ——— ———
 Sounding consonants.

These exercises are very important, as the consonants are rarely spoken correctly, but usually with too long or too short duration. The visible signs

* For correct formation of the consonants and particulars in breathing see preceding parts of this book.

under the words, which gradually diminish in space or number, awaken and sharpen in the student the feeling for the proper duration of the consonant.

(4) While practicing, give a certain duration (without pedantic counting) to the horizontal straight lines (Figs. 3, 4, 5) which represent the voice and vowels. The voice must be heard without tremolo, without pressure, without the least change in pitch; nor must the character of the vowels be changed. The tone must, like a well-drawn wire, be even in thickness, rounding and strength, throughout its entire length.

(5) Give to the three successive arrowheads no longer duration than their collective space merits in comparison to the straight line (voice).

(6) Give to the voiceless consonants, those which cannot be prolonged and under which there is only one arrowhead, only such duration as the time of their production demands, *i. e.*, a quarter of a second.

(7) Give to the sounding consonants no longer duration than their position on the straight line in comparison to the whole line allows.

(8) Give to the vowels, as representatives of the voice, the longest duration.

(9) In Nos. 1 and 2 of the six different ways in which a line must be practiced, let the duration of

the vowels and consonants remain unchanged, as is denoted in the Tables; in Nos. 3 and 4 shorten (as indicated in the Tables) by degrees the duration of the sounding consonants, as well as of those voiceless consonants that can be prolonged; and in No. 5 (rapid speaking) and No. 6 (rhetorical speaking) let the duration be only so long as the rhetorical delivery demands. The duration of the vowels must likewise be shortened by degrees, which is not indicated on the Tables, and, consequently, the time grows faster, but pronunciation remains syllabic up to the rhetorical part, in which syllabication ceases, without destroying the distinctness of the line or any of its parts in the least; at this stage the whole must be the undoubted expression of inner feeling.

(10) If, for practice, you take, for instance, the verse:

The very law which moulds a tear,
And bids it trickle from its source,
That law preserves the earth a sphere,
And guides the planets in their course,

you can treat it in two ways. Either you take the four lines as a whole, practicing them syllabically but speaking them right through; or you take only a line at a time for exercise, practicing in the sixfold manner explained in the beginning, always adding the next, after the preceding one has been fully

practiced, and taking them together in the rhetorical part; hence, after practicing the last line, the whole is delivered rhetorically.

(11) I have in the Tables, in all rhetorical parts, purposely omitted to indicate emphasis on any particular words. Those who understand a sentence (and understand it they must, if they want to speak it) will emphasize the right word; those who do not understand a sentence, will, in spite of designated emphasis, speak only mechanically—and nothing blunts the mind more than this.

(12) After the student has placed the Table in front of him at the height of his eyes, as on a music-stand, has read the verse he wishes to practice several times, and fully comprehends its contents, let him begin, in an erect, though by no means forced attitude, chest and abdomen free from any constraining article of dress, chin neither raised nor drooping, to practice in the sixfold manner described in the beginning. This practice must not exceed a period of ten minutes, followed by a rest of five minutes. Practice again for ten minutes, rest five, and then practice ten minutes for the third time, so that the entire time of actual practice occupies half an hour.

In the afternoon, repeat the practice in the manner just described. A longer practice than this

should not be undertaken during the first fortnight. Later on, the time may be extended to three-quarters of an hour in the forenoon and the same in the afternoon, always, however with the necessary rest of five minutes, which must then ensue after every fifteen minutes' practice.

POEM FOR PRACTICE.

ON A TEAR.

Oh! that the Chemist's magic art
Could crystallize this sacred treasure:
Long should it glitter near my heart,
A secret source of pensive pleasure.

The little brilliant ere it fell,
Its lustre caught from Chloe's eye;
Then, trembling, left its coral cell—
The spring of Sensibility.

Sweet drop of pure and pearly light,
In thee the rays of Virtue shine;
More calmly clear, more mildly bright,
Than any gem that gilds the mine.

Benign restorer of the soul,
Who ever fly'st to bring relief,
When first we feel the rude control
Of Love or Pity, Joy or Grief.

The sage's and the poet's theme
In every clime, in every age,
Thou charm'st in Fancy's idle dream,
In Reason's philosophic page.

The very law which moulds a tear,
And bids it trickle from its source;
That law preserves the earth a sphere,
And guides the planets in their course.

—*Samuel Rogers.*

NOTE TO STUDENT.—Only one stanza (the last) is tabulated. All of the other stanzas are to be practiced in the same manner.

GUTTMANN TABLE NO. 1. (a)

1.

TH E	V E	R Y	L AW	WH I	CH	M OU	L DS	A	TH A
A	N D BI	DS I	T TR I	CK LE		F R O	M I	I	TS S OU R C E
TH A	T L AW	PR E	S E R YES	TH E		EA	R TH	A	S PH E R E
A	N D GU	DES	TH E	PL A	N B	TS I	N TH	EH	R COU R S E

2.

TH E	V E	R Y	L AW	WH I	CH	M OU	L DS	A	TH A
A	N D BI	DS I	T TR I	CK LE		F R O	M I	I	TS S OU R C E
TH A	T L AW	PR E	S E R YES	TH E		EA	R TH	A	S PH E R E
A	N D GU	DES	TH E	PL A	N B	TS I	N TH	EH	R COU R S E

The very law which moulds a tear,
And bids it trickle from its source,
That law preserves the earth a sphere,
And guides the planets in their course.

GUTTMANN TABLE NO. 1. (b)

THE	VE	RY	LAW	WHI	CHOU	LDIA	THA	R
A	MDBI	DSI	TRI	CHIE	PRO	MI	TSSOU	RCE
THA	TLAW	PRE	SE	RYES	THE	EA	RTHA	SPER
A	MDGHI	DESTHE	PLA	ME	TSI	MTHEI	RCOU	RSE

THE	VE	RY	LAW	WHI	CHOU	LDIA	THA	R
A	MDBI	DSI	TRI	CHIE	PRO	MI	TSSOU	RCE
THA	TLAW	PRE	SE	RYES	THE	EA	RTHA	SPER
A	MDGHI	DESTHE	PLA	ME	TSI	MTHEI	RCOU	RSE

5. Speak the whole line SYLLABICALLY and RAPIDLY.

e. Speak the whole line NOT syllabically but RHETORICALLY and in the least forced guided only by feeling.

POEM FOR PRACTICE.

WHEN ALL THY MERCIES, O MY GOD.

When all Thy mercies, O my God,
My rising soul surveys,
Transported with the view, I'm lost
In wonder, love and praise.

Oh, how shall words with equal warmth
The gratitude declare
That glows within my ravished heart?
But Thou canst read it there.

Thy providence my life sustained,
And all my wants redressed,
When in the silent womb I lay,
And hung upon the breast.

To all my weak complaints and cries
Thy mercy lent an ear,
Ere yet my feeble thoughts had learnt
To form themselves in prayer.

Unnumbered comforts to my soul
Thy tender care bestowed,
Before my infant heart conceived
From whence these comforts flowed.

When in the slippery paths of youth
With heedless steps I ran,
Thine arm, unseen, conveyed me safe,
And led me up to man.

Through hidden dangers, toils and death,
It gently cleared my way,
And through the pleasing snares of vice,
More to be feared than they.

When worn with sickness, oft hast Thou
With health renewed my face,
And, when in sins and sorrows sunk,
Revived my soul with grace.

Thy bounteous hand with worldly bliss
Hath made my cup run o'er,
And in a kind and faithful friend
Hath doubled all my store.

Ten thousand thousand precious gifts
My daily thanks employ,
Nor is the least a cheerful heart
That tastes those gifts with joy.

Through every period of my life
Thy goodness I'll pursue;
And after death, in distant worlds,
The glorious theme renew.

When Nature fails, and day and night
Divide Thy works no more,
My ever grateful heart, O Lord,
Thy mercy shall adore.

Through all eternity to Thee
A joyful song I'll raise;
But oh! eternity's too short,
To utter all Thy praise.

—*Joseph Addison.*

NOTE TO STUDENT.—Practice the entire poem in a similar manner. Other poems and pieces of prose should be likewise practiced until a thorough cure is effected.

GUTTMANN TABLE NO. 2. (a)

TH E	N A	L L	T H Y	M R	R C I B	S O	M V	60	D
	M Y		R I	S I	N G	L S U	R V EY	S	
TR A N S P O	R T E		D W I	T H	E	V I E W	I	M L O	S F
I	M W O		N D E	R L O	V E	A	M D P R A I	S E	

WH E	N A,	L L	T H Y	M E	R C I E	S O		M Y	G O	D
						>>>				
< < < M Y						R I	S I	N G	S O U	L S U R V EY S
							>>>			
C R A	N S P O	R T E	D W J	T H	E	V I E W	P	M L O	S T	
								>>>		
I	N W O	M D E	R L O	V E A	K D P R A I	S E				
									>>>	

When all thy mercies, O my God,
Transported with the view, I'm lost
In wonder, love and praise.
My rising soul surveys,

— PART II. NO. 2. (b)

[illegible][illegible]

... **OVERNIGHTLY and RAPIDLY.**

— Speak the whole line SYLLABICALLY and RAPIDLY.

Spec

HOW TO PREVENT OR CURE DEFECTIVE UTTERANCE IN THE YOUNG.

ALTHOUGH stuttering does not make its disagreeable presence fully felt until the afflicted individual becomes completely aware of his defect in all its horror, yet we can, by careful observation, in many cases, perceive slight indications of it in the first attempts at speech made by children, and not rarely we meet with three-year-old children who already stutter in a marked degree. Now, instead of exerting one's self to the utmost in such cases to counteract the evil, to kill in its germ what further development will make so dangerous, people are generally either indifferent to it, or do not consider the matter of sufficient importance, or else follow some such advice as: "Just let the matter alone; the evil will decrease as the child grows older." This way of dealing with the trouble is just as wrong as it would be to postpone the necessary orthopedic treatment of a child, tending to bodily deformity, to a later period. The child grows, indeed, but the evil, instead of decreasing, grows with its growth, so that

its removal is at last rendered almost impossible. What at first was but carelessness and a bad habit becomes, later on, a lasting defect and second nature. This explains the great number of stutterers.

An unpardonable mistake in the treatment of a child inclined toward defective utterance consists in the encouragement of the so-called baby-language:

Down in de b'ight deen meadow
De pitty daisies' home, etc.

When the child speaks to its parents in this or in a similar language, some parents are delighted with the quaintness of the charming three-year-old prattler; and, instead of immediately teaching it to speak correctly, they answer in the same indistinct fashion, as though they, too, were children. The child is thereby not only not shown its own mistakes, but is confirmed in them, and grows more and more into this defective manner of speech, whence stammering and frequently stuttering arise.

It is altogether useless, nay, even in a high degree injurious, to scold, or, worse still, to strike a child for defective utterance or stuttering. It is requisite that those who surround such a child should be most gentle and calm, for everything harsh or abrupt startles, and nothing is more adapted to promote stuttering than terror and fear,

With grown-up persons, or with children over eight years, explanations or prescribed rules may exercise a beneficial effect; with children below eight years this is altogether useless. Here only the means that nature prescribes can be applied—that is, imitation and habit. Whatever a child of such a tender age sees or hears, it imitates, and very often with surprising fidelity. Hence, the creation of a dialect which is spoken by the children just as by the parents. The persons surrounding the child are everything in its development, and it depends principally on them how its natural abilities are developed and what defects make their appearance. Persons in contact with a child of this age ought not to have defects of any kind, as, for instance, in breathing, in the production of voice, in speaking, and in language. They ought not to speak too rapidly, too hastily, or in detached phrases; the child, forced by nature to rely on imitation, will assume all these defects. Hence, let the family be very careful that the child hears only good speaking.

As soon as a mother perceives that a child has the habit of repeating, and quickly repeating, syllables or letters, or, indeed, of incorrectly pronouncing words or syllables or letters, she must not let this pass by unnoticed, or even perhaps laugh at the matter in amusement, mimicking the incorrectly

spoken words and exaggerating the defects; but she must with the greatest calmness, and without startling the child by too sudden interruption, slowly and distinctly utter in correct manner the wrongly pronounced word, syllable, or letter, and cause the little one to repeat it in like manner. Let the mother, however, be careful not to do this with a forced distinctness of utterance, for, as the child will imitate her, it will now fall into the error of affectation, which will increase just as much as any other defect. If the mother has failed to understand the child, let her cause it slowly to repeat its words, always, however, without startling it by too sudden or violent commands; and let her make it a rule never to comply with a wish which the child has not clearly and distinctly uttered. A story is told of a mother who cured her child of stuttering by forcing it to pronounce everything in a long-drawn, almost singing manner; for instance: "Plea-se le-t me- ha-ve a-n a-pple." Not until the child had thus spoken was its wish complied with. Such positive determination is absolutely indispensable to mothers and teachers.

Though, as I have already said, rules and laws are of no avail in the case of a child of from 3 to 7 years, yet it must be accustomed to a certain fixed manner of utterance. Above all, it must be

accustomed always to take breath before beginning to speak; whereby it gains air, time, and tranquillity to speak. When a person wishes to speak, he must first take breath. This the child usually fails to do; it begins with half-filled, sometimes with nearly empty, lungs to express its thoughts, and hence is forced after one or two words to take breath convulsively in order to continue to speak; for instance, "If you [a pant for air] want to go there, etc." This injurious manner of respiration is very prevalent among vivacious children of from 3 to 5 years. If this defect of speech be not broken, many defects, among them stuttering, will ensue in time. It is, therefore, just at this age that a child requires to be treated with the greatest attention, love and patience, and must not be left to itself in the development of its speech.

A very good means of training a child to speak properly, as, indeed, to concentrate its wandering thoughts, is to tell it stories. Let the mother relate little stories to the child, using only easily understood words, short sentences, which can be comprehended by the child, and let her have the child repeat part after part slowly and distinctly, being careful to notice every mistake of the child in breathing and speaking, as well as in the language itself, and to correct every phonetic defect in a

pleasant and gentle manner, not allowing the slightest mistake to pass unnoticed.

If it is particularly difficult for the child to utter correctly certain words, syllables, or letters, let the mother repeat these slowly, loudly, and distinctly (though not in a forced manner) until the child can pronounce them correctly. Let the mother be careful that the vowels are always pronounced clearly—that is, with the correct vowel shades and with the necessary duration—and the consonantal sounds are made short but decided. The letters of the alphabet (vowels and consonants) require a certain time for their formation, and must have a certain duration in speech. The vowel is the carrier of sound; on it we must tarry when it becomes necessary; upon it we must put every degree of emphasis, every shade of accent, for it is the expression of our feeling. It is the body of the language. The consonant is only the dress. Both must be rightly produced in order to obtain the right results; and, as a beautiful body in an ugly dress loses much of its beauty, aye, is often disfigured, so it is with a syllable or a word the vowels of which are rightly produced, while the consonants are falsely or defectively created. The greatest faults of speaking are too great an expenditure of strength and too long a duration of time in the creation of the consonants, and too short

a duration of time, lack of strength, and neglect to give the vowel shades in the creation of the vowels.

It is very injurious to a child inclined to stutter if its questions—and it puts many—are either not answered at all or very impatiently. The child finally becomes imbued with a sort of reluctance to put any questions, withdraws into itself, forgets to question and consequently to speak at all. Persons whose task it is to be with children and instruct them must, in such cases, never become impatient and irritated, and repel the child in a quick and angry manner, but must give a loving and clear explanation to its queries. It will, perhaps, be said that it is not always possible for a mother to do this, and yet thousands of mothers have done it, and thousands will do it in time to come; for the future of a child is based on the first eight years of its life, which lie altogether in the mother's hands. If this part of a child's life (from three to eight years) be allowed to pass without proper education in the utterance of speech; if the child, who at first shows only slight traces of stuttering, be suffered to develop fully into a stutterer, then it will have to undergo the long, tedious cure which requires 6, 10, 15 months, and even more, and which is infinitely more troublesome and wearisome to pupil and teacher.

As in children who are inclined to stutter the activity of the lungs is very slight, it is necessary, before all, to begin with exercises that will strengthen the lungs and the muscles of breathing. For the help of mothers and teachers, I will give some simple aids: Discard all tight-fitting garments of the child; let it stand perfectly erect, with straightened knees, heels close together, the toes turned slightly outward so that the feet shall form the sides of a right angle, chest thrown outward (not excessively), shoulders thrown back, without being raised, and hands hanging loosely at the sides of the body. From this position the child should begin all his exercises. We will call it "Base Position."

Breathing-Exercises.

(1) Let the child in the Base Position breathe in and out several times in succession while standing, by the downward movement of the diaphragm—the fleshy partition between the chest and the abdominal cavity—without raising the shoulders.

Let the child then hold its hands at the waist in the back in such a manner that the palms meet and the fingers are intertwined. During inspiration the arms must be stretched downward, without, however, disengaging the hands, and during expiration should return to their first position. In these movements

the shoulders should not be raised and the back must be kept perfectly straight. The inspiration must take place through the nostrils, the expiration through the mouth. Breathing through the nostrils is very essential. It has the advantage of not drying the mucous membrane of the cavity of the mouth, the entrance to the throat, the throat itself, and the vocal cords, as frequent inspiration through the mouth is apt to do; and the moisture of this part is an essential condition required in speaking. After every inspiration, expiration must follow immediately without any exertion. At first but three such inspirations and expirations should be taken at a time, easy, natural, and inaudible, twice in the forenoon and twice in the afternoon. After two weeks increase gradually to five of these breathings; after four weeks to eight, and after six weeks to ten at a time. Continue these exercises for three months, and during this time see that the inspirations gradually grow deeper and the expirations more energetic. After the lapse of two months, practice the following exercises:

(2) After every inspiration let the child hold the breath three seconds, and then breathe out energetically. After four weeks increase this pause to five seconds, and after ten weeks to eight. Do not proceed any further. When the child has exercised

like this until it is five years old, then let it increase the pause two seconds after every two weeks until twenty seconds have been reached, and not until it is eight years old let it increase to thirty seconds. During these breathing-exercises see that the child does not speak at all, or very little. After them it should not be permitted to leap or run. At other times let it move freely, as much as possible in the open air. These breathing-exercises can be begun with a child when it is three years old, without, at first, however, any holding of the breath. Not until it increases in strength ought the pauses to be taken, but they should not be overdone. With these breathing exercises combine voice-development.

Voice-Exercises.

(1) Do all things before the child that you wish it to imitate.

(a) Breathe in and out inaudibly (through the mouth). Let the child imitate this, and repeat it until it learns it. (b) Breathe (through the mouth) in and out audibly; that is, after the inaudible inspiration utter a long and drawn-out (whispering) *hah* until the child repeats correctly. (c) After an inaudible inspiration, breathe out audibly *hah*; continue this a couple of seconds, and, without taking

fresh breath, turn the whisper into voice, holding this as long as possible. Do not go any further before the child can imitate this. When changing from the whisper into voice, do not do it by saying *ah*, but merge the whisper into voice in such a manner that only the *hah* is heard with voice. (*d*) Begin with voice *hah*, continue a few seconds, and, without taking fresh breath, merge into whisper *hah*, and hold it two seconds. (*e*) Begin with voice *ah*, hold the tone a few seconds, and, without taking fresh breath, merge into whisper *hah*. (*f*) Speak in one expiration *hah* (whisper), *ah* (voice), *hah* (whisper), *ah* (voice). (*g*) Speak in one expiration *ah* (voice), *hah* (whisper), *ah* (voice), *hah* (whisper). (*h*) Speak in one expiration *ah hah* (whisper), *ah hah* (voice), both syllables of equal length; (*i*) then the first syllable *ah* (whisper) short, and (*j*) the second *hah* (whisper) long; (*k*) then *ah hah* (voice), both syllables of equal length; (*l*) then the first syllable short and the second long. These expirations, in a whisper as well as with voice, must be carried out very gently, without any compression whatever of the vocal cords, and have the purpose of giving to the child, who knows nothing of the vocal cords and to whom no explanation would be of any use, the feeling of correctly and gently using them. (*m*) Speak to the child each of the following pure

vowels: *e* (as in *he*), *a* (as in *hay*), *o* (as in *or*), *o'* (as in *oh*), *o''* (as in *cool*), in the same manner as you practiced the vowel *ah* in *b, c, d, e, f, g, h, i, k, l*, and always take heed that the child distinctly distinguishes the vowels.

(2) Utter all the consonants (by their sound, not their name) clearly and distinctly to the child, and let the child repeat each one until it is able to utter it in the same manner. The consonants are divided into sounding-consonants—*l, m, n, r, ng, v, z* (in *zone*), *z* (in *azure*), *y* (in *ye*), *w* (in *woe*), *th* (in *thine*), *b, d, g* (in *give*); and voiceless consonants—*k, c* (in *cup*), and *q, f, p, t, s* (in *sit*), *c* (in *cider*), *th* (in *thin*), *sh*, and *h*. *Ch* is a compound of *t* and *sh*; *j* is a compound of *d* and *z* (in *azure*); *x* is equivalent to *ks* (in *axe*) or to *gs* (in *example*).

(3) Practice combinations of the vowels with consonants—syllables and words. It is not necessary to give any examples, as the mother can easily find them for herself. I would merely draw attention to the fact that it is necessary to begin with easy words, after which one may proceed to more difficult ones. These exercises cannot be practiced too often.

When the child has attained the age of six or seven years, it must begin to practice gymnastic exercises, which put the entire body into action, and

which it is unnecessary to specify, as the principal ones are generally well-known. The breathing and voice-exercises must, however, not be neglected. Gymnastic exercises must always take place in pure air; in summer in the open air, in winter in properly ventilated, moderately warm rooms where there is no draught. As long as the child is not old enough to attend school, it must daily exercise as much as possible in the fresh air, and must as much as possible breathe through the nostrils, the mouth being kept closed.

REMARKS.

WHEN this method for the cure of stammering was in another form many copies were ordered by the Bryant School for Stammerers for its pupils and such applicants who could not attend upon its personal instruction. Indeed, it may be said that Mr. Bryant has endeavored to take up and carry on the work where Prof. Guttman relinquished it; and if, as is likely the case, there are those who from lack of time or other causes find it difficult to attain a cure alone, no more conscientious, careful, painstaking, successful teacher can be found than Mr. Bryant. He has had many years of experience with those who suffer from defects in their speech, besides being well along in the study of medicine, nervous diseases and kindred subjects. It is well to remember in this connection that a little showing is sometimes worth volumes of written or printed instructions.

Some time ago Mr. Edgar S. Werner, the publisher of *Werner's Magazine*, said:

"In 1879 *Werner's Magazine* was started under the name of *The Voice*. Its scope was outlined as follows: '*The Voice* hopes to be a tongue to the thousands who are measurably deprived of one of the noblest faculties given to man. In it they may express their thoughts, tell of their wrongs and make an appeal which, perhaps, will bring relief. It will be opposed to the so-called "secret methods," and will do its best to expose them and those who practice swindling arts. It will, however, encourage those who are doing conscientiously what they can to remedy defective utterance.'

"This marked an era in the treatment of vocal defects and in the formulating of a vocal science. One of the first copies of this magazine fell into the hands of Mr. F. A. Bryant, who, by reason of his own affliction, was deeply interested in such matters. He, by following the treatment outlined there, in the Klencke and Günther methods, overcame his own impediment. In this way this magazine was instrumental in leading Mr. Bryant to found a school for stammerers in New York City, which has become the largest and most successful institution of its kind in the country.

"The Mann and Colvin method, the method of the American Vocal Institute, of Mr. Zug, of Mr. I. R. Aldrich, and of others—whatever of good there was in them, Mr. Bryant has succeeded to, and uses in his school for stammerers. Having passed through the ordeal himself, his heart is in the work, and his long training and experience qualify him especially for it, so much so that the *New York Herald* and other papers have described the workings of the school, and spoken in terms of praise of the results obtained,

"A recent visit to Mr. Bryant's school showed two class-rooms full of pupils ranging from ten to twenty-five years, each case being peculiar to itself. The pupils presented an interesting study to the psychologist. In dealing with stammerers, one seems to come into closer and more tangible relations with the human soul, arriving, as it were, at the spot where body and soul interlace; and the success of a teacher depends largely upon his understanding this and upon his ability to restore the harmony of these disturbed conditions.

"The method of treatment pursued by Mr. Bryant and his associates might be concisely stated in these four words: Respiration, Vocalization, Articulation and Mentalization; in other words, Breath, Voice, Speech and Thought. The problem is how to coördinate them and to get them to work logically, harmoniously and fluently. Speech seems to be a very simple thing, but let any part of its machinery get out of gear, and only the greatest knowledge and skill, combined with long practical experience, can restore it to normal activity. Mr. Bryant's aim is to teach the pupil, first, to know what is to be done; secondly, how to do it; and, thirdly, to give the pupil the ability to do it. Rare, indeed, is it that two pupils are equally strong or equally weak in either of these points. One may know how to use his organs of speech, but has not the power to apply his knowledge. Another one may have sufficient power, but does not know practically how to use his vocal organs. Just here is required the manipulative skill of the speech-specialist. To straighten a bent stick it is necessary to bend it the other way—but just how far to bend it, that's the question. No rule can be laid down. Only the knowledge and experience of the living teacher can straighten the crooked speech-stick.

"The mechanics of speech are in themselves easy enough, but speech is something more than a mechanical act—it is the oral expression of thought, and it is just in the expression of his own thoughts that the stammerer experiences trouble. Mr. Bryant realizes this, and through all the exercises, whether they be respiratory, vocalic or articulatory, the pupil's mind is also exercised and made to go through gymnastics the same as his bodily organs are called upon to do. He is taught to think aright, to keep a model of perfect speech constantly before the mind. Mr. Bryant works upon the theory that there are mental as well as physical gymnastics.

"The theory of the cure of stammering, as outlined here, seems easy enough; but to put it into practical and successful effect, is most difficult. It is too great an undertaking even for such eminent practitioners as Drs. Hammond, Lusk, Seguin, Starr, and other specialists, who, whenever they are consulted by stammerers, advise them to go to Mr. Bryant, whose work they are familiar with, and whose method they endorse."

For those who wish to communicate with Mr. Bryant his address is appended; and arrangements have been made whereby a fine illustrated pamphlet will be sent, if this book is mentioned. The address is, Prof. F. A. Bryant, 9 West Fourteenth street, New York.

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